RAW SEQUENCE LISTING
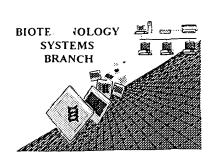# ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: *09/ 759, 508*

Source: *OIPE*

Date Processed by STIC: *1 - 29 - 01*

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Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money

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http://www.uspto.gov/web/offices/pac/checker

BEST AVAILABLE COPY

OIPE

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        RAW SEQUENCE LISTING              DATE: 01/29/2001
        PATENT APPLICATION:  US/09/759,508   TIME: 13:24:52

        Input Set : A:\00786.381002.SEQLIST.TXT
        Output Set: N:\CRF3\01292001\I759508.raw
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    4 <110> APPLICANT: Fishman, Mark C.
    6 <120> TITLE OF INVENTION: Methods for Diagnosing and Treating
    7        Heart Disease
    9 <130> FILE REFERENCE: 00786/381002
C--> 11 <140> CURRENT APPLICATION NUMBER: US/09/759,508
C--> 11 <141> CURRENT FILING DATE: 2001-01-12
   11 <150> PRIOR APPLICATION NUMBER: US 60/175,787
   12 <151> PRIOR FILING DATE: 2000-01-12
   14 <160> NUMBER OF SEQ ID NOS: 11
   16 <170> SOFTWARE: FastSEQ for Windows Version 4.0
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Does Not Comply
Corrected Diskette Needed

ERRORED SEQUENCES

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 1392 <211> LENGTH: 26926
 1393 <212> TYPE: PRT
 1394 <213> ORGANISM: Homo sapiens
 1396 <400> SEQUENCE: 2
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 1398 1               5                  10                 15
 1399 Val Leu Glu Gly Ser Thr Ala Thr Phe Glu Ala His Ile Ser Gly Phe
 1400                 20                 25                 30
 1401 Pro Val Pro Glu Val Ser Trp Phe Arg Asp Gly Gln Val Ile Ser Thr
 1402              35                 40                 45
 1403 Ser Thr Leu Pro Gly Val Glu Ile Ser Phe Ser Asp Gly Arg Ala Lys
 1404          50                 55                 60
 1405 Leu Thr Ile Pro Ala Val Thr Lys Ala Asn Ser Gly Arg Tyr Ser Leu
 1406 65                 70                 75                 80
 1407 Lys Ala Thr Asn Gly Ser Gly Gln Ala Thr Ser Thr Ala Glu Leu Leu
 1408              85                 90                 95
 1409 Val Lys Ala Glu Thr Ala Pro Pro Asn Phe Val Gln Arg Leu Gln Ser
 1410              100                105                110
 1411 Met Thr Val Arg Gln Gly Ser Gln Val Arg Leu Gln Val Arg Val Thr
 1412              115                120                125
 1413 Gly Ile Pro Thr Pro Val Val Lys Phe Tyr Arg Asp Gly Ala Glu Ile
 1414          130                135                140
 1415 Gln Ser Ser Leu Asp Phe Gln Ile Ser Gln Glu Gly Asp Leu Tyr Ser
 1416 145                150                155                160
 1417 Leu Leu Ile Ala Glu Ala Tyr Pro Glu Asp Ser Gly Thr Tyr Ser Val
 1418              165                170                175
 1419 Asn Ala Thr Asn Ser Val Gly Arg Ala Thr Ser Thr Ala Glu Leu Leu
 1420              180                185                190
 1421 Val Gln Gly Glu Glu Glu Val Pro Ala Lys Lys Thr Lys Thr Ile Val
 1422          195                200                205
 1423 Ser Thr Ala Gln Ile Ser Glu Ser Arg Gln Thr Arg Ile Glu Lys Lys
 1424          210                215                220
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1425 Ile Glu Ala His Phe Asp Ala Arg Ser Ile Ala Thr Val Glu Met Val
1426 225                 230                 235                 240
1427 Ile Asp Gly Ala Ala Gly Gln Gln Leu Pro His Lys Thr Pro Pro Arg
1428             245                 250                 255
1429 Ile Pro Pro Lys Pro Lys Ser Arg Ser Pro Thr Pro Pro Ser Ile Ala
1430             260                 265                 270
1431 Ala Lys Ala Gln Leu Ala Arg Gln Gln Ser Pro Ser Pro Ile Arg His
1432             275                 280                 285
1433 Ser Pro Ser Pro Val Arg His Val Arg Ala Pro Thr Pro Ser Pro Val
1434         290                 295                 300
1435 Arg Ser Val Ser Pro Ala Ala Arg Ile Ser Thr Ser Pro Ile Arg Ser
1436 305                 310                 315                 320
1437 Val Arg Ser Pro Leu Leu Met Arg Lys Thr Gln Ala Ser Thr Val Ala
1438             325                 330                 335
1439 Thr Gly Pro Glu Val Pro Pro Pro Trp Lys Gln Glu Gly Tyr Val Ala
1440             340                 345                 350
1441 Ser Ser Ser Glu Ala Glu Met Arg Glu Thr Thr Leu Thr Thr Ser Thr
1442         355                 360                 365
1443 Gln Ile Arg Thr Glu Glu Arg Trp Glu Gly Arg Tyr Gly Val Gln Glu
1444         370                 375                 380
1445 Gln Val Thr Ile Ser Gly Ala Ala Gly Ala Ala Ala Ser Val Ser Ala
1446 385                 390                 395                 400
1447 Ser Ala Ser Tyr Ala Ala Glu Ala Val Ala Thr Gly Ala Lys Glu Val
1448             405                 410                 415
1449 Lys Gln Asp Ala Asp Lys Ser Ala Ala Val Ala Thr Val Val Ala Ala
1450         420                 425                 430
1451 Val Asp Met Ala Arg Val Arg Glu Pro Val Ile Ser Ala Val Glu Gln
1452         435                 440                 445
1453 Thr Ala Gln Arg Thr Thr Thr Thr Ala Val His Ile Gln Pro Ala Gln
1454 450                 455                 460
1455 Glu Gln Val Arg Lys Glu Ala Glu Lys Thr Ala Val Thr Lys Val Val
1456 465                 470                 475                 480
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1458             485                 490                 495
1459 Glu Ile Ile Thr Thr Lys Gln Glu Gln Met His Val Thr His Glu Gln
1460         500                 505                 510
1461 Ile Arg Lys Glu Thr Glu Lys Thr Phe Val Pro Lys Val Val Ile Ser
1462         515                 520                 525
1463 Ala Ala Lys Ala Lys Glu Gln Glu Thr Arg Ile Ser Glu Glu Ile Thr
1464         530                 535                 540
1465 Lys Lys Gln Lys Gln Val Thr Gln Glu Ala Ile Met Lys Glu Thr Arg
1466 545                 550                 555                 560
1467 Lys Thr Val Val Pro Lys Val Ile Val Ala Thr Pro Lys Val Lys Glu
1468             565                 570                 575
1469 Gln Asp Leu Val Ser Arg Gly Arg Glu Gly Ile Thr Thr Lys Arg Glu
1470         580                 585                 590
1471 Gln Val Gln Ile Thr Gln Glu Lys Met Arg Lys Glu Ala Glu Lys Thr
1472         595                 600                 605
1473 Ala Leu Ser Thr Ile Ala Val Ala Thr Ala Lys Ala Lys Glu Gln Glu
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1474      610                    615                    620
1475 Thr Ile Leu Arg Thr Arg Glu Thr Met Ala Thr Arg Gln Glu Gln Ile
1476 625                    630                    635                    640
1477 Gln Val Thr His Gly Lys Val Asp Val Gly Lys Lys Ala Glu Ala Val
1478                     645          .          650                    655
1479 Ala Thr Val Val Ala Ala Val Asp Gln Ala Arg Val Arg Glu Pro Arg
1480                     660                    665  .               670
1481 Glu Pro Gly His Leu Glu Glu Ser Tyr Ala Gln Gln Thr Thr Leu Glu
1482               675                    680                    685
1483 Tyr Gly Tyr Lys Glu Arg Ile Ser Ala Ala Lys Val Ala Glu Pro Pro
1484          690                    695                    700
1485 Gln Arg Pro Ala Ser Glu Pro His Val Val Pro Lys Ala Val Lys Pro
1486 705                    710                    715                    720
1487 Arg Val Ile Gln Ala Pro Ser Glu Thr His Ile Lys Thr Thr Asp Gln
1488                     725                    730                    735
1489 Lys Gly Met His Ile Ser Ser Gln Ile Lys Lys Thr Thr Asp Leu Thr
1490               740                    745                    750
1491 Thr Glu Arg Leu Val His Val Asp Lys Arg Pro Arg Thr Ala Ser Pro
1492          755                    760                    765
1493 His Phe Thr Val Ser Lys Ile Ser Val Pro Lys Thr Glu His Gly Tyr
1494          770                    775                    780
1495 Glu Ala Ser Ile Ala Gly Ser Ala Ile Ala Thr Leu Gln Lys Glu Leu
1496 785                    790                    795                    800
1497 Ser Ala Thr Ser Ser Ala Gln Lys Ile Thr Lys Ser Val Lys Ala Pro
1498               805                    810                    815
1499 Thr Val Lys Pro Ser Glu Thr Arg Val Arg Ala Glu Pro Thr Pro Leu
1500               820                    825                    830
1501 Pro Gln Phe Pro Phe Ala Asp Thr Pro Asp Thr Tyr Lys Ser Glu Ala
1502          835                    840                    845
1503 Gly Val Glu Val Lys Lys Glu Val Gly Val Ser Ile Thr Gly Thr Thr
1504          850                    855                    860
1505 Val Arg Glu Glu Arg Phe Glu Val Leu His Gly Arg Glu Ala Lys Val
1506 865                    870                    875                    880
1507 Thr Glu Thr Ala Arg Val Pro Ala Pro Val Glu Ile Pro Val Thr Pro
1508               885                    890                    895
1509 Pro Thr Leu Val Ser Gly Leu Lys Asn Val Thr Val Ile Glu Gly Glu
1510               900                    905                    910
1511 Ser Val Thr Leu Glu Cys His Ile Ser Gly Tyr Pro Ser Pro Thr Val
1512               915                    920                    925
1513 Thr Trp Tyr Arg Glu Asp Tyr Gln Ile Glu Ser Ser Ile Asp Phe Gln
1514          930                    935                    940
1515 Ile Thr Phe Gln Ser Gly Ile Ala Arg Leu Met Ile Arg Glu Ala Phe
1516 945                    950                    955                    960
1517 Ala Glu Asp Ser Gly Arg Phe Thr Cys Ser Ala Val Asn Glu Ala Gly
1518               965                    970                    975
1519 Thr Val Ser Thr Ser Cys Tyr Leu Ala Val Gln Val Ser Glu Glu Phe
1520               980                    985                    990
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1522          995                    1000                   1005
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1526 1025                1030                1035                1040
1527 Lys Pro Val Val Gln Lys Leu Val Glu Gly Gly Ser Val Phe Gly
1528                1045                1050                1055
1529 Cys Gln Val Gly Gly Asn Pro Lys Pro His Val Tyr Trp Lys Lys Ser
1530                1060                1065                1070
1531 Gly Val Pro Leu Thr Thr Gly Tyr Arg Tyr Lys Val Ser Tyr Asn Lys
1532           1075                1080                1085
1533 Gln Thr Gly Glu Cys Lys Leu Val Ile Ser Met Thr Phe Ala Asp Asp
1534           1090                1095                1100
1535 Ala Gly Glu Tyr Thr Ile Val Val Arg Asn Lys His Gly Glu Thr Ser
1536 1105                1110                1115                1120
1537 Ala Ser Ala Ser Leu Leu Glu Glu Ala Asp Tyr Glu Leu Leu Met Lys
1538                1125                1130                1135
1539 Ser Gln Gln Glu Met Leu Tyr Gln Thr Gln Val Thr Ala Phe Val Gln
1540                1140                1145                1150
1541 Glu Pro Glu Val Gly Glu Thr Ala Pro Gly Phe Val Tyr Ser Glu Tyr
1542           1155                1160                1165
1543 Glu Lys Glu Tyr Glu Lys Glu Gln Ala Leu Ile Arg Lys Lys Met Ala
1544      1170                1175                1180
1545 Lys Asp Thr Val Val Val Arg Thr Tyr Val Glu Asp Gln Glu Phe His
1546 1185                1190                1195                1200
1547 Ile Ser Ser Phe Glu Glu Arg Leu Ile Lys Glu Ile Glu Tyr Arg Ile
1548                1205                1210                1215
1549 Ile Lys Thr Thr Leu Glu Glu Leu Leu Glu Glu Asp Gly Glu Glu Lys
1550                1220                1225                1230
1551 Met Ala Val Asp Ile Ser Glu Ser Glu Ala Val Glu Ser Gly Phe Asp
1552           1235                1240                1245
1553 Leu Arg Ile Lys Asn Tyr Arg Ile Leu Glu Gly Met Gly Val Thr Phe
1554      1250                1255                1260
1555 His Cys Lys Met Ser Gly Tyr Pro Leu Pro Lys Ile Ala Trp Tyr Lys
1556 1265                1270                1275                1280
1557 Asp Gly Lys Arg Ile Lys His Gly Glu Arg Tyr Gln Met Asp Phe Leu
1558                1285                1290                1295
1559 Gln Asp Gly Arg Ala Ser Leu Arg Ile Pro Val Val Leu Pro Glu Asp
1560                1300                1305                1310
1561 Glu Gly Ile Tyr Thr Ala Phe Ala Ser Asn Ile Lys Gly Asn Ala Ile
1562           1315                1320                1325
1563 Cys Ser Gly Lys Leu Tyr Val Glu Pro Ala Ala Pro Leu Gly Ala Pro
1564      1330                1335                1340
1565 Thr Tyr Ile Pro Thr Leu Glu Pro Val Ser Arg Ile Arg Ser Leu Ser
1566 1345                1350                1355                1360
1567 Pro Arg Ser Val Ser Arg Ser Pro Ile Arg Met Ser Pro Ala Arg Met
1568                1365                1370                1375
1569 Ser Pro Ala Arg Met Ser Pro Ala Arg Met Ser Pro Ala Arg Met Ser
1570                1380                1385                1390
1571 Pro Gly Arg Arg Leu Glu Glu Thr Asp Glu Ser Gln Leu Glu Arg Leu
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1573 Tyr Lys Pro Val Phe Val Leu Lys Pro Val Ser Phe Lys Cys Leu Glu
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1575 Gly Gln Thr Ala Arg Phe Asp Leu Lys Val Val Gly Arg Pro Met Pro
1576 1425              1430              1435              1440
1577 Glu Thr Phe Trp Phe His Asp Gly Gln Gln Ile Val Asn Asp Tyr Thr
1578          1445              1450              1455
1579 His Lys Val Val Ile Lys Glu Asp Gly Thr Gln Ser Leu Ile Ile Val
1580          1460              1465              1470
1581 Pro Ala Thr Pro Ser Asp Ser Gly Glu Trp Thr Val Val Ala Gln Asn
1582          1475              1480              1485
1583 Arg Ala Gly Arg Ser Ser Ile Ser Val Ile Leu Thr Val Glu Ala Val
1584      1490              1495              1500
1585 Glu His Gln Val Lys Pro Met Phe Val Glu Lys Leu Lys Asn Val Asn
1586 1505              1510              1515              1520
1587 Ile Lys Glu Gly Ser Arg Leu Glu Met Lys Val Arg Ala Thr Gly Asn
1588          1525              1530              1535
1589 Pro Asn Pro Asp Ile Val Trp Leu Lys Asn Ser Asp Ile Ile Val Pro
1590          1540              1545              1550
1591 His Lys Tyr Pro Lys Ile Arg Ile Glu Gly Thr Lys Gly Glu Ala Ala
1592          1555              1560              1565
1593 Leu Lys Ile Asp Ser Thr Val Ser Gln Asp Ser Ala Trp Tyr Thr Ala
1594      1570              1575              1580
1595 Thr Ala Ile Asn Lys Ala Gly Arg Asp Thr Thr Arg Cys Lys Val Asn
1596 1585              1590              1595              1600
1597 Val Glu Val Glu Phe Ala Glu Pro Glu Pro Glu Arg Lys Leu Ile Ile
1598          1605              1610              1615
1599 Pro Arg Gly Thr Tyr Arg Ala Lys Glu Ile Ala Ala Pro Glu Leu Glu
1600          1620              1625              1630
1601 Pro Leu His Leu Arg Tyr Gly Gln Glu Gln Trp Glu Glu Gly Asp Leu
1602          1635              1640              1645
1603 Tyr Asp Lys Glu Lys Gln Gln Lys Pro Phe Phe Lys Lys Leu Thr
1604      1650              1655              1660
1605 Ser Leu Arg Leu Lys Arg Phe Gly Pro Ala His Phe Glu Cys Arg Leu
1606 1665              1670              1675              1680
1607 Thr Pro Ile Ser Asp Pro Thr Met Val Val Glu Trp Leu His Asp Gly
1608          1685              1690              1695
1609 Lys Pro Leu Glu Ala Ala Asn Arg Leu Arg Met Ile Asn Glu Phe Gly
1610          1700              1705              1710
1611 Tyr Cys Ser Leu Asp Tyr Gly Val Ala Tyr Ser Arg Asp Ser Gly Ile
1612          1715              1720              1725
1613 Ile Thr Cys Arg Ala Thr Asn Lys Tyr Gly Thr Asp His Thr Ser Ala
1614      1730              1735              1740
1615 Thr Leu Ile Val Lys Asp Glu Lys Ser Leu Val Glu Glu Ser Gln Leu
1616 1745              1750              1755              1760
1617 Pro Glu Gly Arg Lys Gly Leu Gln Arg Ile Glu Glu Leu Glu Arg Met
1618          1765              1770              1775
1619 Ala His Glu Gly Ala Leu Thr Gly Val Thr Thr Asp Gln Lys Glu Lys
1620          1780              1785              1790
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1621 Gln Lys Pro Asp Ile Val Leu Tyr Pro Glu Pro Val Arg Val Leu Glu
1622      1795           1800           1805
1623 Gly Glu Thr Ala Arg Phe Arg Cys Arg Val Thr Gly Tyr Pro Gln Pro
1624      1810           1815           1820
1625 Lys Val Asn Trp Tyr Leu Asn Gly Gln Leu Ile Arg Lys Ser Lys Arg
1626 1825           1830           1835           1840
1627 Phe Arg Val Arg Tyr Asp Gly Ile His Tyr Leu Asp Ile Val Asp Cys
1628           1845           1850           1855
1629 Lys Ser Tyr Asp Thr Gly Glu Val Lys Val Thr Ala Glu Asn Pro Glu
1630           1860           1865           1870
1631 Gly Val Ile Glu His Lys Val Lys Leu Glu Ile Gln Gln Arg Glu Asp
1632 .      1875           1880           1885
1633 Phe Arg Ser Val Leu Arg Arg Ala Pro Glu Pro Arg Pro Glu Phe His
1634      1890           1895           1900
1635 Val His Glu Pro Gly Lys Leu Gln Phe Glu Val Gln Lys Val Asp Arg
1636 1905           1910           1915           1920
1637 Pro Val Asp Thr Thr Glu Thr Lys Glu Val Val Lys Leu Lys Arg Ala
1638           1925           1930           1935
1639 Glu Arg Ile Thr His Glu Lys Val Pro Glu Glu Ser Glu Glu Leu Arg
1640           1940           1945           1950
1641 Ser Lys Phe Lys Arg Arg Thr Glu Glu Gly Tyr Tyr Glu Ala Ile Thr
1642      1955           1960           1965
1643 Ala Val Glu Leu Lys Ser Arg Lys Lys Asp Glu Ser Tyr Glu Glu Leu
1644      1970           1975           1980
1645 Leu Arg Lys Thr Lys Asp Glu Leu Leu His Trp Thr Lys Glu Leu Thr
1646 1985           1990           1995           2000
1647 Glu Glu Glu Lys Lys Ala Leu Ala Glu Glu Gly Lys Ile Thr Ile Pro
1648           2005           2010           2015
1649 Thr Phe Lys Pro Asp Lys Ile Glu Leu Ser Pro Ser Met Glu Ala Pro
1650           2020           2025           2030
1651 Lys Ile Phe Glu Arg Ile Gln Ser Gln Thr Val Gly Gln Gly Ser Asp
1652      2035           2040           2045
1653 Ala His Phe Arg Val Arg Val Val Gly Lys Pro Asp Pro Glu Cys Glu
1654      2050           2055           2060
1655 Trp Tyr Lys Asn Gly Val Lys Ile Glu Arg Ser Asp Arg Ile Tyr Trp
1656 2065           2070           2075           2080
1657 Tyr Trp Pro Glu Asp Asn Val Cys Glu Leu Val Ile Arg Asp Val Thr
1658           2085           2090           2095
1659 Ala Glu Asp Ser Ala Ser Ile Met Val Lys Ala Ile Asn Ile Ala Gly
1660           2100           2105           2110
1661 Glu Thr Ser Ser His Ala Phe Leu Leu Val Gln Ala Lys Gln Leu Ile
1662      2115           2120           2125
1663 Thr Phe Thr Gln Glu Leu Gln Asp Val Val Ala Lys Glu Lys Asp Thr
1664      2130           2135           2140
1665 Met Ala Thr Phe Glu Cys Glu Thr Ser Glu Pro Phe Val Lys Val Lys
1666 2145           2150           2155           2160
1667 Trp Tyr Lys Asp Gly Met Glu Val His Glu Gly Asp Lys Tyr Arg Met
1668           2165           2170           2175
1669 His Ser Asp Arg Lys Val His Phe Leu Ser Ile Leu Thr Ile Asp Thr
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1670            2180            2185            2190
1671 Ser Asp Ala Glu Asp Tyr Ser Cys Val Leu Val Glu Asp Glu Asn Val
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1673 Lys Thr Thr Ala Lys Leu Ile Val Glu Gly Ala Val Val Glu Phe Val
1674     2210            2215            2220
1675 Lys Glu Leu Gln Asp Ile Glu Val Pro Glu Ser Tyr Ser Gly Glu Leu
1676 2225            2230            2235            2240
1677 Glu Cys Ile Val Ser Pro Glu Asn Ile Glu Gly Lys Trp Tyr His Asn
1678         2245            2250            2255
1679 Asp Val Glu Leu Lys Ser Asn Gly Lys Tyr Thr Ile Thr Ser Arg Arg
1680         2260            2265            2270
1681 Gly Arg Gln Asn Leu Thr Val Lys Asp Val Thr Lys Glu Asp Gln Gly
1682         2275            2280            2285
1683 Glu Tyr Ser Phe Val Ile Asp Gly Lys Lys Thr Thr Cys Lys Leu Lys
1684     2290            2295            2300
1685 Met Lys Pro Arg Pro Ile Ala Ile Leu Gln Gly Leu Ser Asp Gln Lys
1686 2305            2310            2315            2320
1687 Val Cys Glu Gly Asp Ile Val Gln Leu Glu Val Lys Val Ser Leu Glu
1688         2325            2330            2335
1689 Ser Val Glu Gly Val Trp Met Lys Asp Gly Gln Glu Val Gln Pro Ser
1690         2340            2345            2350
1691 Asp Arg Val His Ile Val Ile Asp Lys Gln Ser His Met Leu Leu Ile
1692     2355            2360            2365
1693 Glu Asp Met Thr Lys Glu Asp Ala Gly Asn Tyr Ser Phe Thr Ile Pro
1694     2370            2375            2380
1695 Ala Leu Gly Leu Ser Thr Ser Gly Arg Val Ser Val Tyr Ser Val Asp
1696 2385            2390            2395            2400
1697 Val Ile Thr Pro Leu Lys Asp Val Asn Val Ile Glu Gly Thr Lys Ala
1698         2405            2410            2415
1699 Val Leu Glu Cys Lys Val Ser Val Pro Asp Val Thr Ser Val Lys Trp
1700     2420            2425            2430
1701 Tyr Leu Asn Asp Glu Gln Ile Lys Pro Asp Asp Arg Val Gln Ala Ile
1702     2435            2440            2445
1703 Val Lys Gly Thr Lys Gln Arg Leu Val Ile Asn Arg Thr His Ala Ser
1704     2450            2455            2460
1705 Asp Glu Gly Pro Tyr Lys Leu Ile Val Gly Arg Val Glu Thr Asn Cys
1706 2465            2470            2475            2480
1707 Asn Leu Ser Val Glu Lys Ile Lys Ile Ile Arg Gly Leu Arg Asp Leu
1708         2485            2490            2495
1709 Thr Cys Thr Glu Thr Gln Asn Val Val Phe Glu Val Glu Leu Ser His
1710         2500            2505            2510
1711 Ser Gly Ile Asp Val Leu Trp Asn Phe Lys Asp Lys Glu Ile Lys Pro
1712     2515            2520            2525
1713 Ser Ser Lys Tyr Lys Ile Glu Ala His Gly Lys Ile Tyr Lys Leu Thr
1714     2530            2535            2540
1715 Val Leu Asn Met Met Lys Asp Asp Glu Gly Lys Tyr Thr Phe Tyr Ala
1716 2545            2550            2555            2560
1717 Gly Glu Asn Met Thr Ser Gly Lys Leu Thr Val Ala Gly Gly Ala Ile
1718         2565            2570            2575
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1719 Ser Lys Pro Leu Thr Asp Gln Thr Val Ala Glu Ser Gln Glu Ala Val
1720           2580               2585               2590
1721 Phe Glu Cys Glu Val Ala Asn Pro Asp Ser Lys Gly Glu Trp Leu Arg
1722           2595               2600               2605
1723 Asp Gly Lys His Leu Pro Leu Thr Asn Asn Ile Arg Ser Glu Ser Asp
1724      2610               2615               2620
1725 Gly His Lys Arg Arg Leu Ile Ile Ala Ala Thr Lys Leu Asp Asp Ile
1726 2625               2630               2635               2640
1727 Gly Glu Tyr Thr Tyr Lys Val Ala Thr Ser Lys Thr Ser Ala Lys Leu
1728           2645               2650               2655
1729 Lys Val Glu Ala Val Lys Ile Lys Lys Thr Leu Lys Asn Leu Thr Val
1730           2660               2665               2670  .
1731 Thr Glu Thr Gln Asp Ala Val Phe Thr Val Glu Leu Thr His Pro Asn
1732           2675               2680               2685
1733 Val Lys Gly Val Gln Trp Ile Lys Asn Gly Val Val Leu Glu Ser Asn
1734      2690               2695               2700
1735 Glu Lys Tyr Ala Ile Ser Val Lys Gly Thr Ile Tyr Ser Leu Arg Ile
1736 2705               2710               2715               2720
1737 Lys Asn Cys Ala Ile Val Asp Glu Ser Val Tyr Gly Phe Arg Leu Gly
1738           2725               2730               2735
1739 Arg Leu Gly Ala Ser Ala Arg Leu His Val Glu Thr Val Lys Ile Ile
1740           2740               2745               2750
1741 Lys Lys Pro Lys Asp Val Thr Ala Leu Glu Asn Ala Thr Val Ala Phe
1742           2755               2760               2765
1743 Glu Val Ser Val Ser His Asp Thr Val Pro Val Lys Trp Phe His Lys
1744      2770               2775               2780
1745 Ser Val Glu Ile Lys Pro Ser Asp Lys His Arg Leu Val Ser Glu Arg
1746 2785               2790               2795               2800
1747 Lys Val His Lys Leu Met Leu Gln Asn Ile Ser Pro Ser Asp Ala Gly
1748           2805               2810               2815
1749 Glu Tyr Thr Ala Val Val Gly Gln Leu Glu Cys Lys Ala Lys Leu Phe
1750           2820               2825               2830
1751 Val Glu Thr Leu His Ile Thr Lys Thr Met Lys Asn Ile Glu Val Pro
1752           2835               2840               2845
1753 Glu Thr Lys Thr Ala Ser Phe Glu Cys Glu Val Ser His Phe Asn Val
1754      2850               2855               2860
1755 Pro Ser Met Trp Leu Lys Asn Gly Val Glu Ile Glu Met Ser Glu Lys
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1757 Phe Lys Ile Val Val Gln Gly Lys Leu His Gln Leu Ile Ile Met Asn
1758           2885               2890               2895
1759 Thr Ser Thr Glu Asp Ser Ala Glu Tyr Thr Phe Val Cys Gly Asn Asp
1760           2900               2905               2910
1761 Gln Val Ser Ala Thr Leu Thr Val Thr Pro Ile Met Ile Thr Ser Met
1762           2915               2920               2925
1763 Leu Lys Asp Ile Asn Ala Glu Glu Lys Asp Thr Ile Thr Phe Glu Val
1764      2930               2935               2940
1765 Thr Val Asn Tyr Glu Gly Ile Ser Tyr Lys Trp Leu Lys Asn Gly Val
1766 2945               2950               2955               2960
1767 Glu Ile Lys Ser Thr Asp Lys Cys Gln Met Arg Thr Lys Lys Leu Thr
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1769 His Ser Leu Asn Ile Arg Asn Val His Phe Gly Asp Ala Ala Asp Tyr
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1771 Thr Phe Val Ala Gly Lys Ala Thr Ser Thr Ala Thr Leu Tyr Val Glu
1772           2995                3000                3005
1773 Ala Arg His Ile Glu Phe Arg Lys His Ile Lys Asp Ile Lys Val Leu
1774           3010                3015                3020
1775 Glu Lys Lys Arg Ala Met Phe Glu Cys Glu Val Ser Glu Pro Asp Ile
1776 3025                3030                3035                3040
1777 Thr Val Gln Trp Met Lys Asp Asp Gln Glu Leu Gln Ile Thr Asp Arg
1778                3045                3050                3055
1779 Ile Lys Ile Gln Lys Glu Lys Tyr Val His Arg Leu Leu Ile Pro Ser
1780           3060                3065                3070
1781 Thr Arg Met Ser Asp Ala Gly Lys Tyr Thr Val Val Ala Gly Gly Asn
1782           3075                3080                3085
1783 Val Ser Thr Ala Lys Leu Phe Val Glu Gly Arg Asp Val Arg Ile Arg
1784           3090                3095                3100
1785 Ser Ile Lys Lys Glu Val Gln Val Ile Glu Lys Gln Arg Ala Val Val
1786 3105                3110                3115                3120
1787 Glu Phe Glu Val Asn Glu Asp Asp Val Asp Ala His Trp Tyr Lys Asp
1788                3125                3130                3135
1789 Gly Ile Glu Ile Asn Phe Gln Val Gln Glu Arg His Lys Tyr Val Val
1790           3140                3145                3150
1791 Glu Arg Arg Ile His Arg Met Phe Ile Ser Glu Thr Arg Gln Ser Asp
1792           3155                3160                3165
1793 Ala Gly Glu Tyr Thr Phe Val Ala Gly Arg Asn Arg Ser Ser Val Thr
1794           3170                3175                3180
1795 Leu Tyr Val Asn Ala Pro Glu Pro Pro Gln Val Leu Gln Glu Leu Gln
1796 3185                3190                3195                3200
1797 Pro Val Thr Val Gln Ser Gly Lys Pro Ala Arg Phe Cys Ala Met Ile
1798                3205                3210                3215
1799 Ser Gly Arg Pro Gln Pro Lys Ile Ser Trp Tyr Lys Glu Glu Gln Leu
1800           3220                3225                3230
1801 Leu Ser Thr Gly Phe Lys Cys Lys Phe Leu His Asp Gly Gln Glu Tyr
1802           3235                3240                3245
1803 Thr Leu Leu Ile Glu Ala Phe Pro Glu Asp Ala Ala Val Tyr Thr
1804           3250                3255                3260
1805 Cys Glu Ala Lys Asn Asp Tyr Gly Val Ala Thr Thr Ser Ala Ser Leu
1806 3265                3270                3275                3280
1807 Ser Val Glu Val Pro Glu Val Val Ser Pro Gln Glu Met Pro Val
1808                3285                3290                3295
1809 Tyr Pro Pro Ala Ile Ile Thr Pro Leu Gln Asp Thr Val Thr Ser Glu
1810           3300                3305                3310
1811 Gly Gln Pro Ala Arg Phe Gln Cys Arg Val Ser Gly Thr Asp Leu Lys
1812           3315                3320                3325
1813 Val Ser Trp Tyr Ser Lys Asp Lys Lys Ile Lys Pro Ser Arg Phe Phe
1814           3330                3335                3340
1815 Arg Met Thr Gln Phe Glu Asp Thr Tyr Gln Leu Glu Ile Ala Glu Ala
1816 3345                3350                3355                3360
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1817 Tyr Pro Glu Asp Glu Gly Thr Tyr Thr Phe Val Ala Asn Asn Ala Val
1818                 3365                3370                3375
1819 Gly Gln Val Ser Ser Thr Ala Asn Leu Ser Leu Glu Ala Pro Glu Ser
1820                 3380                3385                3390
1821 Ile Leu His Glu Arg Ile Glu Gln Glu Ile Glu Met Glu Met Lys Glu
1822             3395                3400                3405
1823 Phe Ser Ser Ser Phe Leu Ser Ala Glu Glu Glu Gly Leu His Ser Ala
1824             3410                3415                3420
1825 Glu Leu Gln Leu Ser Lys Ile Asn Glu Thr Leu Glu Leu Leu Ser Glu
1826 3425                3430                3435                3440
1827 Ser Pro Val Tyr Pro Thr Lys Phe Asp Ser Glu Lys Glu Gly Thr Gly
1828                 3445                3450                3455
1829 Pro Ile Phe Ile Lys Glu Val Ser Asn Ala Asp Ile Ser Met Gly Asp
1830             3460                3465                3470
1831 Val Ala Thr Leu Ser Val Thr Val Ile Gly Ile Pro Lys Pro Lys Ile
1832             3475                3480                3485
1833 Gln Trp Phe Phe Asn Gly Val Leu Leu Thr Pro Ser Ala Asp Tyr Lys
1834         3490                3495                3500
1835 Phe Val Phe Asp Gly Asp Asp His Ser Leu Ile Ile Leu Phe Thr Lys
1836 3505                3510                3515                3520
1837 Leu Glu Asp Glu Gly Glu Tyr Thr Cys Met Ala Ser Asn Asp Tyr Gly
1838             3525                3530                3535
1839 Lys Thr Ile Cys Ser Ala Tyr Leu Lys Ile Asn Ser Lys Gly Glu Gly
1840             3540                3545                3550
1841 His Lys Asp Thr Glu Thr Glu Ser Ala Val Ala Lys Ser Leu Glu Lys
1842         3555                3560                3565
1843 Leu Gly Gly Pro Cys Pro Pro His Phe Leu Lys Glu Leu Lys Pro Ile
1844             3570                3575                3580
1845 Arg Cys Ala Gln Gly Leu Pro Ala Ile Phe Glu Tyr Thr Val Val Gly
1846 3585                3590                3595                3600
1847 Glu Pro Ala Pro Thr Val Thr Trp Phe Lys Glu Asn Lys Gln Leu Cys
1848                 3605                3610                3615
1849 Thr Ser Val Tyr Tyr Thr Ile Ile His Asn Pro Asn Gly Ser Gly Thr
1850             3620                3625                3630
1851 Phe Ile Val Asn Asp Pro Gln Arg Glu Asp Ser Gly Leu Tyr Ile Cys
1852             3635                3640                3645
1853 Lys Ala Glu Asn Met Leu Gly Glu Ser Thr Cys Ala Ala Glu Leu Leu
1854     3650                3655                3660
1855 Val Leu Leu Glu Asp Thr Asp Met Thr Asp Thr Pro Cys Lys Ala Lys
1856 3665                3670                3675                3680
1857 Ser Thr Pro Glu Ala Pro Glu Asp Phe Pro Gln Thr Pro Leu Lys Gly
1858             3685                3690                3695
1859 Pro Ala Val Glu Ala Leu Asp Ser Glu Gln Glu Ile Ala Thr Phe Val
1860             3700                3705                3710
1861 Lys Asp Thr Ile Leu Lys Ala Ala Leu Ile Thr Glu Glu Asn Gln Gln
1862         3715                3720                3725
1863 Leu Ser Tyr Glu His Ile Ala Lys Ala Asn Glu Leu Ser Ser Gln Leu
1864     3730                3735                3740
1865 Pro Leu Gly Ala Gln Glu Leu Gln Ser Ile Leu Glu Gln Asp Lys Leu
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1866 3745                 3750                 3755                 3760
1867 Thr Pro Glu Ser Thr Arg Glu Phe Leu Cys Ile Asn Gly Ser Ile His
1868                 3765                 3770                 3775
1869 Phe Gln Pro Leu Lys Glu Pro Ser Pro Asn Leu Gln Leu Gln Ile Val
1870                 3780                 3785                 3790
1871 Gln Ser Gln Lys Thr Phe Ser Lys Glu Gly Ile Leu Met Pro Glu Glu
1872                 3795                 3800                 3805
1873 Pro Glu Thr Gln Ala Val Leu Ser Asp Thr Glu Lys Ile Phe Pro Ser
1874      3810                 3815                 3820
1875 Ala Met Ser Ile Glu Gln Ile Asn Ser Leu Thr Val Glu Pro Leu Lys
1876 3825                 3830                 3835                 3840
1877 Thr Leu Leu Ala Glu Pro Gly Asn Tyr Pro Gln Ser Ser Ile Glu
1878                 3845                 3850                 3855
1879 Pro Pro Met His Ser Tyr Leu Thr Ser Val Ala Glu Glu Val Leu Ser
1880                 3860                 3865                 3870
1881 Leu Lys Glu Lys Thr Val Ser Asp Thr Asn Arg Glu Gln Arg Val Thr
1882      3875                 3880                 3885
1883 Leu Gln Lys Gln Glu Ala Gln Ser Ala Leu Ile Leu Ser Gln Ser Leu
1884      3890                 3895                 3900
1885 Ala Glu Gly His Val Glu Ser Leu Gln Ser Pro Asp Val Met Ile Ser
1886 3905                 3910                 3915                 3920
1887 Gln Val Asn Tyr Glu Pro Leu Val Pro Ser Glu His Ser Cys Thr Glu
1888                 3925                 3930             .       3935
1889 Gly Gly Lys Ile Leu Ile Glu Ser Ala Asn Pro Leu Glu Asn Ala Gly
1890                 3940                 3945                 3950
1891 Gln Asp Ser Ala Val Arg Ile Glu Glu Gly Lys Ser Leu Arg Phe Pro
1892      3955                 3960                 3965
1893 Leu Ala Leu Glu Glu Lys Gln Val Leu Leu Lys Glu His Ser Asp
1894      3970                 3975                 3980
1895 Asn Val Val Met Pro Pro Asp Gln Ile Ile Glu Ser Lys Arg Glu Pro
1896 3985                 3990                 3995                 4000
1897 Val Ala Ile Lys Lys Val Gln Glu Val Gln Gly Arg Asp Leu Leu Ser
1898                 4005                 4010                 4015
1899 Lys Glu Ser Leu Leu Ser Gly Ile Pro Glu Glu Gln Arg Leu Asn Leu
1900      4020                 4025                 4030
1901 Lys Ile Gln Ile Cys Arg Ala Leu Gln Ala Ala Val Ala Ser Glu Gln
1902      4035                 4040                 4045
1903 Pro Gly Leu Phe Ser Glu Trp Leu Arg Asn Ile Glu Lys Val Glu Val
1904      4050                 4055                 4060
1905 Glu Ala Val Asn Ile Thr Gln Glu Pro Arg His Ile Met Cys Met Tyr
1906 4065                 4070                 4075                 4080
1907 Leu Val Thr Ser Ala Lys Ser Val Thr Glu Glu Val Thr Ile Ile Ile
1908                 4085                 4090                 4095
1909 Glu Asp Val Asp Pro Gln Met Ala Asn Leu Lys Met Glu Leu Arg Asp
1910                 4100                 4105                 4110
1911 Ala Leu Cys Ala Ile Ile Tyr Glu Glu Ile Asp Ile Leu Thr Ala Glu
1912      4115                 4120                 4125
1913 Gly Pro Arg Ile Gln Gln Gly Ala Lys Thr Ser Leu Gln Glu Glu Met
1914      4130                 4135                 4140
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1915 Asp Ser Phe Ser Gly Ser Gln Lys Val Glu Pro Ile Thr Glu Pro Glu
1916 4145              4150              4155              4160
1917 Val Glu Ser Lys Tyr Leu Ile Ser Thr Glu Glu Val Ser Tyr Phe Asn
1918              4165              4170              4175
1919 Val Gln Ser Arg Val Lys Tyr Leu Asp Ala Thr Pro Val Thr Lys Gly
1920              4180              4185              4190
1921 Val Ala Ser Ala Val Val Ser Asp Glu Lys Gln Asp Glu Ser Leu Lys
1922              4195              4200              4205
1923 Pro Ser Glu Glu Lys Glu Glu Ser Ser Ser Glu Ser Gly Thr Glu Glu
1924         4210              4215              4220
1925 Val Ala Thr Val Lys Ile Gln Glu Ala Glu Gly Gly Leu Ile Lys Glu
1926 4225              4230              4235              4240
1927 Asp Gly Pro Met Ile His Thr Pro Leu Val Asp Thr Val Ser Glu Glu
1928              4245              4250              4255
1929 Gly Asp Ile Val His Leu Thr Thr Ser Ile Thr Asn Ala Lys Glu Val
1930              4260              4265              4270
1931 Asn Trp Tyr Phe Glu Asn Lys Leu Val Pro Ser Asp Glu Lys Phe Lys
1932         4275              4280              4285
1933 Cys Leu Gln Asp Gln Asn Thr Tyr Thr Leu Val Ile Asp Lys Val Asn
1934     4290              4295              4300
1935 Thr Glu Asp His Gln Gly Glu Tyr Val Cys Glu Ala Leu Asn Asp Ser
1936 4305              4310              4315              4320
1937 Gly Lys Thr Ala Thr Ser Ala Lys Leu Thr Val Val Lys Arg Ala Ala
1938              4325              4330              4335
1939 Pro Val Ile Lys Arg Lys Ile Glu Pro Leu Glu Val Ala Leu Gly His
1940              4340              4345              4350
1941 Leu Ala Lys Phe Thr Cys Glu Ile Gln Ser Ala Pro Asn Val Arg Phe
1942         4355              4360              4365
1943 Gln Trp Phe Lys Ala Gly Arg Glu Ile Tyr Glu Ser Asp Lys Cys Ser
1944     4370              4375              4380
1945 Ile Arg Ser Ser Lys Tyr Ile Ser Ser Leu Glu Ile Leu Arg Thr Gln
1946 4385              4390              4395              4400
1947 Val Val Asp Cys Gly Glu Tyr Thr Cys Lys Ala Ser Asn Glu Tyr Gly
1948              4405              4410              4415
1949 Ser Val Ser Cys Thr Ala Thr Leu Thr Val Thr Val Pro Gly Gly Glu
1950         4420              4425              4430
1951 Lys Lys Val Arg Lys Leu Leu Pro Glu Arg Lys Pro Glu Pro Lys Glu
1952         4435              4440              4445
1953 Glu Val Val Leu Lys Ser Val Leu Arg Lys Arg Pro Glu Glu Glu Glu
1954     4450              4455              4460
1955 Pro Lys Val Glu Pro Lys Lys Leu Glu Lys Val Lys Lys Pro Ala Val
1956 4465              4470              4475              4480
1957 Pro Glu Pro Pro Pro Pro Lys Pro Val Glu Glu Val Glu Val Pro Thr
1958              4485              4490              4495
1959 Val Thr Lys Arg Glu Arg Lys Ile Pro Glu Pro Thr Lys Val Pro Glu
1960              4500              4505              4510
1961 Ile Lys Pro Ala Ile Pro Leu Pro Ala Pro Glu Pro Lys Pro Lys Pro
1962         4515              4520              4525
1963 Glu Ala Glu Val Lys Thr Ile Lys Pro Pro Pro Val Glu Pro Glu Pro
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1964      4530              4535              4540
1965 Thr Pro Ile Ala Ala Pro Val Thr Val Pro Val Val Gly Lys Lys Ala
1966 4545              4550              4555              4560
1967 Glu Ala Lys Ala Pro Lys Glu Glu Ala Ala Lys Pro Lys Gly Pro Ile
1968              4565              4570              4575
1969 Lys Gly Val Pro Lys Lys Thr Pro Ser Pro Ile Gln Ala Glu Arg Arg
1970              4580              4585              4590
1971 Lys Leu Arg Pro Gly Ser Gly Gly Glu Lys Pro Pro Asp Glu Ala Pro
1972         4595              4600              4605
1973 Phe Thr Tyr Gln Leu Lys Ala Val Pro Leu Lys Phe Val Lys Glu Ile
1974      4610              4615              4620
1975 Lys Asp Ile Ile Leu Thr Glu Ser Glu Phe Val Gly Ser Ser Ala Ile
1976 4625              4630              4635              4640
1977 Phe Glu Cys Leu Val Ser Pro Ser Thr Ala Ile Thr Thr Trp Met Lys
1978              4645              4650              4655
1979 Asp Gly Ser Asn Ile Arg Glu Ser Pro Lys His Arg Phe Ile Ala Asp
1980              4660              4665              4670
1981 Gly Lys Asp Arg Lys Leu His Ile Ile Asp Val Gln Leu Ser Asp Ala
1982         4675              4680              4685
1983 Gly Glu Tyr Thr Cys Val Leu Arg Leu Gly Asn Lys Glu Lys Thr Ser
1984      4690              4695              4700
1985 Thr Ala Lys Leu Val Val Glu Glu Leu Pro Val Arg Phe Val Lys Thr
1986 4705              4710            . 4715              4720
1987 Leu Glu Glu Glu Val Thr Val Val Lys Gly Gln Pro Leu Tyr Leu Ser
1988              4725              4730              4735
1989 Cys Glu Leu Asn Lys Glu Arg Asp Val Val Trp Arg Lys Asp Gly Lys
1990              4740              4745              4750
1991 Ile Val Val Glu Lys Pro Gly Arg Ile Val Pro Gly Val Ile Gly Leu
1992         4755              4760              4765
1993 Met Arg Ala Leu Thr Ile Asn Asp Ala Asp Asp Thr Asp Ala Gly Thr
1994      4770              4775              4780
1995 Tyr Thr Val Thr Val Glu Asn Ala Asn Asn Leu Glu Cys Ser Ser Cys
1996 4785              4790              4795              4800
1997 Val Lys Val Val Glu Val Ile Arg Asp Trp Leu Val Lys Pro Ile Arg
1998              4805              4810              4815
1999 Asp Gln His Val Lys Pro Lys Gly Thr Ala Ile Phe Ala Cys Asp Ile
2000              4820              4825              4830
2001 Ala Lys Asp Thr Pro Asn Ile Lys Trp Phe Lys Gly Tyr Asp Glu Ile
2002         4835              4840              4845
2003 Pro Ala Glu Pro Asn Asp Lys Thr Glu Ile Leu Arg Asp Gly Asn His
2004      4850              4855              4860
2005 Leu Tyr Leu Lys Ile Lys Asn Ala Met Pro Glu Asp Ile Ala Glu Tyr
2006 4865              4870              4875              4880
2007 Ala Val Glu Ile Glu Gly Lys Arg Tyr Pro Ala Lys Leu Thr Leu Gly
2008              4885              4890              4895
2009 Glu Arg Glu Val Glu Leu Leu Lys Pro Ile Glu Asp Val Thr Ile Tyr
2010         4900              4905              4910
2011 Glu Lys Glu Ser Ala Ser Phe Asp Ala Glu Ile Ser Glu Ala Asp Ile
2012         4915              4920              4925
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Input Set : A:\00786.381002.SEQLIST.TXT
Output Set: N:\CRF3\01292001\I759508.raw

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2013 Pro Gly Gln Trp Lys Leu Lys Gly Glu Leu Leu Arg Pro Ser Pro Thr
2014      4930               4935               4940
2015 Cys Glu Ile Lys Ala Glu Gly Gly Lys Arg Phe Leu Thr Leu His Lys
2016 4945               4950               4955               4960
2017 Val Lys Leu Asp Gln Ala Gly Glu Val Leu Tyr Gln Ala Leu Asn Ala
2018                   4965               4970               4975
2019 Ile Thr Thr Ala Ile Leu Thr Val Lys Glu Ile Glu Leu Asp Phe Ala
2020           4980               4985               4990
2021 Val Pro Leu Lys Asp Val Thr Val Pro Glu Arg Arg Gln Ala Arg Phe
2022      4995               5000               5005
2023 Glu Cys Val Leu Thr Arg Glu Ala Asn Val Ile Trp Ser Lys Gly Pro
2024      5010               5015               5020
2025 Asp Ile Ile Lys Ser Ser Asp Lys Phe Asp Ile Ile Ala Asp Gly Lys
2026 5025               5030               5035               5040
2027 Lys His Ile Leu Val Ile Asn Asp Ser Gln Phe Asp Asp Glu Gly Val
2028           5045               5050               5055
2029 Tyr Thr Ala Glu Val Glu Gly Lys Lys Thr Ser Ala Arg Leu Phe Val
2030           5060               5065               5070
2031 Thr Gly Ile Arg Leu Lys Phe Met Ser Pro Leu Glu Asp Gln Thr Val
2032           5075               5080               5085
2033 Lys Glu Gly Glu Thr Ala Thr Phe Val Cys Glu Leu Ser His Glu Lys
2034      5090               5095               5100
2035 Met His Val Val Trp Phe Lys Asn Asp Ala Lys Leu His Thr Ser Arg
2036 5105               5110               5115               5120
2037 Thr Val Leu Ile Ser Ser Glu Gly Lys Thr His Lys Leu Glu Met Lys
2038           5125               5130               5135
2039 Glu Val Thr Leu Asp Asp Ile Ser Gln Ile Lys Ala Gln Val Lys Glu
2040           5140               5145               5150
2041 Leu Ser Ser Thr Ala Gln Leu Lys Val Leu Glu Ala Asp Pro Tyr Phe
2042           5155               5160               5165
2043 Thr Val Lys Leu His Asp Lys Thr Ala Val Glu Lys Asp Glu Ile Thr
2044      5170               5175               5180
2045 Leu Lys Cys Glu Val Ser Lys Asp Val Pro Val Lys Trp Phe Lys Asp
2046 5185               5190               5195               5200
2047 Gly Glu Glu Ile Val Pro Ser Pro Lys Tyr Ser Ile Lys Ala Asp Gly
2048           5205               5210               5215
2049 Leu Arg Arg Ile Leu Lys Ile Lys Lys Ala Asp Leu Lys Asp Lys Gly
2050           5220               5225               5230
2051 Glu Tyr Val Cys Asp Cys Gly Thr Asp Lys Thr Lys Ala Asn Val Thr
2052           5235               5240               5245
2053 Val Glu Ala Arg Leu Ile Glu Val Glu Lys Pro Leu Tyr Gly Val Glu
2054      5250               5255               5260
2055 Val Phe Val Gly Glu Thr Ala His Phe Glu Ile Glu Leu Ser Glu Pro
2056 5265               5270               5275               5280
2057 Asp Val His Gly Gln Trp Lys Leu Lys Gly Gln Pro Leu Thr Ala Ser
2058           5285               5290               5295
2059 Pro Asp Cys Glu Ile Ile Glu Asp Gly Lys Lys His Ile Leu Ile Leu
2060           5300               5305               5310
2061 His Asn Cys Gln Leu Gly Met Thr Gly Glu Val Ser Phe Gln Ala Ala
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RAW SEQUENCE LISTING   DATE: 01/29/2001
PATENT APPLICATION: US/09/759,508   TIME: 13:24:54

Input Set : A:\00786.381002.SEQLIST.TXT
Output Set: N:\CRF3\01292001\I759508.raw

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2062        5315          5320              5325
2063 Asn Ala Lys Ser Ala Ala Asn Leu Lys Val Lys Glu Leu Pro Leu Ile
2064     5330          5335              5340
2065 Phe Ile Thr Pro Leu Ser Asp Val Lys Val Phe Glu Lys Asp Glu Ala
2066 5345          5350          .       5355              5360
2067 Lys Phe Glu Cys Glu Val Ser Arg Glu Pro Lys Thr Phe Arg Trp Leu
2068          5365              5370              5375
2069 Lys Gly Thr Gln Glu Ile Thr Gly Asp Asp Arg Phe Glu Leu Ile Lys
2070          5380              5385              5390
2071 Asp Gly Thr Lys His Ser Met Val Ile Lys Ser Ala Ala Phe Glu Asp
2072          5395              5400              5405
2073 Glu Ala Lys Tyr Met Phe Glu Ala Glu Asp Lys His Thr Ser Gly Lys
2074     5410          5415              5420
2075 Leu Ile Ile Glu Gly Ile Arg Leu Lys Phe Leu Thr Pro Leu Lys Asp
2076 5425          5430              5435              5440
2077 Val Thr Ala Lys Glu Lys Glu Ser Ala Val Phe Thr Val Glu Leu Ser
2078          5445              5450              5455
2079 His Asp Asn Ile Arg Val Lys Trp Phe Lys Asn Asp Gln Arg Leu His
2080          5460              5465              5470
2081 Thr Thr Arg Ser Val Ser Met Gln Asp Glu Gly Lys Thr His Ser Ile
2082          5475              5480              5485
2083 Thr Phe Lys Asp Leu Ser Ile Asp Asp Thr Ser Gln Ile Arg Val Glu
2084     5490          5495              5500
2085 Ala Met Gly Met Ser Ser Glu Ala Lys Leu Thr Val Leu Glu Gly Asp
2086 5505          5510              5515              5520
2087 Pro Tyr Phe Thr Gly Lys Leu Gln Asp Tyr Thr Gly Val Glu Lys Asp
2088          5525              5530              5535
2089 Glu Val Ile Leu Gln Cys Glu Ile Ser Lys Ala Asp Ala Pro Val Lys
2090          5540              5545              5550
2091 Trp Phe Lys Asp Gly Lys Glu Ile Lys Pro Ser Lys Asn Ala Val Ile
2092          5555              5560              5565
2093 Lys Thr Asp Gly Lys Lys Arg Met Leu Ile Leu Lys Lys Ala Leu Lys
2094     5570          5575              5580
2095 Ser Asp Ile Gly Gln Tyr Thr Cys Asp Cys Gly Thr Asp Lys Thr Ser
2096 5585          5590              5595              5600
2097 Gly Lys Leu Asp Ile Glu Asp Arg Glu Ile Lys Leu Val Arg Pro Leu
2098          5605              5610              5615
2099 His Ser Val Glu Val Met Glu Thr Glu Thr Ala Arg Phe Glu Thr Glu
2100          5620              5625              5630
2101 Ile Ser Glu Asp Asp Ile His Ala Asn Trp Lys Leu Lys Gly Glu Ala
2102          5635              5640              5645
2103 Leu Leu Gln Thr Pro Asp Cys Glu Ile Lys Glu Glu Gly Lys Ile His
2104     5650          5655              5660
2105 Ser Leu Val Leu His Asn Cys Arg Leu Asp Gln Thr Gly Gly Val Asp
2106 5665          5670              5675              5680
2107 Phe Gln Ala Ala Asn Val Lys Ser Ser Ala His Leu Arg Val Lys Pro
2108          5685              5690              5695
2109 Arg Val Ile Gly Leu Leu Arg Pro Leu Lys Asp Val Thr Val Thr Ala
2110          5700          5705              5710
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2111 Gly Glu Thr Ala Thr Phe Asp Cys Glu Leu Ser Tyr Glu Asp Ile Pro
2112        5715                5720                5725
2113 Val Glu Trp Tyr Leu Lys Gly Lys Lys Leu Glu Pro Ser Asp Lys Val
2114        5730                5735                5740
2115 Val Pro Arg Ser Glu Gly Lys Val His Thr Leu Thr Leu Arg Asp Val
2116 5745                5750                5755                5760
2117 Lys Leu Glu Asp Ala Gly Glu Val Gln Leu Thr Ala Lys Asp Phe Lys
2118        5765                5770                5775
2119 Thr His Ala Asn Leu Phe Val Lys Glu Pro Pro Val Glu Phe Thr Lys
2120        5780                5785                5790
2121 Pro Leu Glu Asp Gln Thr Val Glu Glu Gly Ala Thr Ala Val Leu Glu
2122        5795                5800                5805
2123 Cys Glu Val Ser Arg Glu Asn Ala Lys Val Lys Trp Phe Lys Asn Gly
2124        5810                5815                5820
2125 Thr Glu Ile Leu Lys Ser Lys Lys Tyr Glu Ile Val Ala Asp Gly Arg
2126 5825                5830                5835                5840
2127 Val Arg Lys Leu Val Ile His Asp Cys Thr Pro Glu Asp Ile Lys Thr
2128        5845                5850                5855
2129 Tyr Thr Cys Asp Ala Lys Asp Phe Lys Thr Ser Cys Asn Leu Asn Val
2130        5860                5865                5870
2131 Val Pro Pro His Val Glu Phe Leu Arg Pro Leu Thr Asp Leu Gln Val
2132        5875                5880                5885
2133 Arg Glu Lys Glu Met Ala Arg Phe Glu Cys Glu Leu Ser Arg Glu Asn
2134        5890                5895                5900
2135 Ala Lys Val Lys Trp Phe Lys Asp Gly Ala Glu Ile Lys Lys Gly Lys
2136 5905                5910                5915                5920
2137 Lys Tyr Asp Ile Ile Ser Lys Gly Ala Val Arg Ile Leu Val Ile Asn
2138        5925                5930                5935
2139 Lys Cys Leu Leu Asp Asp Glu Ala Glu Tyr Ser Cys Glu Val Arg Thr
2140        5940                5945                5950
2141 Ala Arg Thr Ser Gly Met Leu Thr Val Leu Glu Glu Glu Ala Val Phe
2142        5955                5960                5965
2143 Thr Lys Asn Leu Ala Asn Ile Glu Val Ser Glu Thr Asp Thr Ile Lys
2144        5970                5975                5980
2145 Leu Val Cys Glu Val Ser Lys Pro Gly Ala Glu Val Ile Trp Tyr Lys
2146 5985                5990                5995                6000
2147 Gly Asp Glu Glu Ile Ile Glu Thr Gly Arg Tyr Glu Ile Leu Thr Glu
2148        6005                6010                6015
2149 Gly Arg Lys Arg Ile Leu Val Ile Gln Asn Ala His Leu Glu Asp Ala
2150        6020                6025                6030
2151 Gly Asn Tyr Asn Cys Arg Leu Pro Ser Ser Arg Thr Asp Gly Lys Val
2152        6035                6040                6045
2153 Lys Val His Glu Leu Ala Ala Glu Phe Ile Ser Lys Pro Gln Asn Leu
2154        6050                6055                6060
2155 Glu Ile Leu Glu Gly Glu Lys Ala Glu Phe Val Cys Ser Ile Ser Lys
2156 6065                6070                6075                6080
2157 Glu Ser Phe Pro Val Gln Trp Lys Arg Asp Asp Lys Thr Leu Glu Ser
2158        6085                6090                6095
2159 Gly Asp Lys Tyr Asp Val Ile Ala Asp Gly Lys Lys Arg Val Leu Val
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2160          6100              6105              6110
2161 Val Lys Asp Ala Thr Leu Gln Asp Met Gly Thr Tyr Val Val Met Val
2162     6115              6120              6125
2163 Gly Ala Ala Arg Ala Ala Ala His Leu Thr Val Ile Glu Lys Leu Arg
2164     6130              6135              6140
2165 Ile Val Val Pro Leu Lys Asp Thr Arg Val Lys Glu Gln Gln Glu Val
2166 6145              6150              6155              6160
2167 Val Phe Asn Cys Glu Val Asn Thr Glu Gly Ala Lys Ala Lys Trp Phe
2168              6165              6170              6175
2169 Arg Asn Glu Glu Ala Ile Phe Asp Ser Ser Lys Tyr Ile Ile Leu Gln
2170          6180              6185              6190
2171 Lys Asp Leu Val Tyr Thr Leu Arg Ile Arg Asp Ala His Leu Asp Asp
2172     6195              6200              6205
2173 Gln Ala Asn Tyr Asn Val Ser Leu Thr Asn His Arg Gly Glu Asn Val
2174     6210              6215              6220
2175 Lys Ser Ala Ala Asn Leu Ile Val Glu Glu Glu Asp Leu Arg Ile Val
2176 6225              6230              6235              6240
2177 Glu Pro Leu Lys Asp Ile Glu Thr Met Glu Lys Lys Ser Val Thr Phe
2178              6245              6250              6255
2179 Trp Cys Lys Val Asn Arg Leu Asn Val Thr Leu Lys Trp Thr Lys Asn
2180              6260              6265              6270
2181 Gly Glu Glu Val Pro Phe Asp Asn Arg Val Ser Tyr Arg Val Asp Lys
2182     6275              6280              6285
2183 Tyr Lys His Met Leu Thr Ile Lys Asp Cys Gly Phe Pro Asp Glu Gly
2184     6290              6295              6300
2185 Glu Tyr Ile Val Thr Ala Gly Gln Asp Lys Ser Val Ala Glu Leu Leu
2186 6305              6310              6315              6320
2187 Ile Ile Glu Ala Pro Thr Glu Phe Val Glu His Leu Glu Asp Gln Thr
2188              6325              6330              6335
2189 Val Thr Glu Phe Asp Asp Ala Val Phe Ser Cys Gln Leu Ser Arg Glu
2190          6340              6345              6350
2191 Lys Ala Asn Val Lys Trp Tyr Arg Asn Gly Arg Glu Ile Lys Glu Gly
2192     6355              6360              6365
2193 Lys Lys Tyr Lys Phe Glu Lys Asp Gly Ser Ile His Arg Leu Ile Ile
2194     6370              6375              6380
2195 Lys Asp Cys Arg Leu Asp Asp Glu Cys Glu Tyr Ala Cys Gly Val Glu
2196 6385              6390              6395              6400
2197 Asp Arg Lys Ser Arg Ala Arg Leu Phe Val Glu Glu Ile Pro Val Glu
2198              6405              6410              6415
2199 Ile Ile Arg Pro Pro Gln Asp Ile Leu Glu Ala Pro Gly Ala Asp Val
2200          6420              6425              6430
2201 Val Phe Leu Ala Glu Leu Asn Lys Asp Lys Val Glu Val Gln Trp Leu
2202          6435              6440              6445
2203 Arg Asn Asn Met Val Val Val Gln Gly Asp Lys His Gln Met Met Ser
2204     6450              6455              6460
2205 Glu Gly Lys Ile His Arg Leu Gln Ile Cys Asp Ile Lys Pro Arg Asp
2206 6465              6470              6475              6480
2207 Gln Gly Glu Tyr Arg Phe Ile Ala Lys Asp Lys Glu Ala Arg Ala Lys
2208              6485              6490              6495
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2209 Leu Glu Leu Ala Ala Ala Pro Lys Ile Lys Thr Ala Asp Gln Asp Leu
2210           6500              6505              6510
2211 Val Val Asp Val Gly Lys Pro Leu Thr Met Val Val Pro Tyr Asp Ala
2212           6515              6520              6525
2213 Tyr Pro Lys Ala Glu Ala Glu Trp Phe Lys Glu Asn Glu Pro Leu Ser
2214      6530              6535              6540
2215 Thr Lys Thr Ile Asp Thr Thr Ala Glu Gln Thr Ser Phe Arg Ile Leu
2216 6545              6550              6555              6560
2217 Glu Ala Lys Lys Gly Asp Lys Gly Arg Tyr Lys Ile Val Leu Gln Asn
2218           6565              6570              6575
2219 Lys His Gly Lys Ala Glu Gly Phe Ile Asn Leu Lys Val Ile Asp Val
2220           6580              6585              6590
2221 Pro Gly Pro Val Arg Asn Leu Glu Val Thr Glu Thr Phe Asp Gly Glu
2222           6595              6600              6605
2223 Val Ser Leu Ala Trp Glu Glu Pro Leu Thr Asp Gly Gly Ser Lys Ile
2224      6610              6615              6620
2225 Ile Gly Tyr Val Val Glu Arg Arg Asp Ile Lys Arg Lys Thr Trp Val
2226 6625              6630              6635              6640
2227 Leu Ala Thr Asp Arg Ala Glu Ser Cys Glu Phe Thr Val Thr Gly Leu
2228           6645              6650              6655
2229 Gln Lys Gly Gly Val Glu Tyr Leu Phe Arg Val Ser Ala Arg Asn Arg
2230           6660              6665              6670
2231 Val Gly Thr Gly Glu Pro Val Glu Thr Asp Asn Pro Val Glu Ala Arg
2232           6675              6680              6685
2233 Ser Lys Tyr Asp Val Pro Gly Pro Pro Leu Asn Val Thr Ile Thr Asp
2234      6690              6695              6700
2235 Val Asn Arg Phe Gly Val Ser Leu Thr Trp Glu Pro Pro Glu Tyr Asp
2236 6705              6710              6715              6720
2237 Gly Gly Ala Glu Ile Thr Asn Tyr Val Ile Glu Leu Arg Asp Lys Thr
2238           6725              6730              6735
2239 Ser Ile Arg Trp Asp Thr Ala Met Thr Val Arg Ala Glu Asp Leu Ser
2240           6740              6745              6750
2241 Ala Thr Val Thr Asp Val Val Glu Gly Gln Glu Tyr Ser Phe Arg Val
2242           6755              6760              6765
2243 Arg Ala Gln Asn Arg Ile Gly Val Gly Lys Pro Ser Ala Ala Thr Pro
2244      6770              6775              6780
2245 Phe Val Lys Val Ala Asp Pro Ile Glu Arg Pro Ser Pro Pro Val Asn
2246 6785              6790              6795              6800
2247 Leu Thr Ser Ser Asp Gln Thr Gln Ser Ser Val Gln Leu Lys Trp Glu
2248           6805              6810              6815
2249 Pro Pro Leu Lys Asp Gly Gly Ser Pro Ile Leu Gly Tyr Ile Ile Glu
2250           6820              6825              6830
2251 Arg Cys Glu Glu Gly Lys Asp Asn Trp Ile Arg Cys Asn Met Lys Leu
2252           6835              6840              6845
2253 Val Pro Glu Leu Thr Tyr Lys Val Thr Gly Leu Glu Lys Gly Asn Lys
2254      6850              6855              6860
2255 Tyr Leu Tyr Arg Val Ser Ala Glu Asn Lys Ala Gly Val Ser Asp Pro
2256 6865              6870              6875              6880
2257 Ser Glu Ile Leu Gly Pro Leu Thr Ala Asp Asp Ala Phe Val Glu Pro
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                    PATENT APPLICATION:  US/09/759,508   TIME: 13:24:54

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                    Output Set: N:\CRF3\01292001\I759508.raw

2258                6885                6890                6895
2259 Thr Met Asp Leu Ser Ala Phe Lys Asp Gly Leu Glu Val Ile Val Pro
2260                6900                6905                6910
2261 Asn Pro Ile Thr Ile Leu Val Pro Ser Thr Gly Tyr Pro Arg Pro Thr
2262           6915                6920                6925
2263 Ala Thr Trp Cys Phe Gly Asp Lys Val Leu Glu Thr Gly Asp Arg Val
2264      6930                6935                6940
2265 Lys Met Lys Thr Leu Ser Ala Tyr Ala Glu Leu Val Ile Ser Pro Ser
2266 6945                6950                6955                6960
2267 Glu Arg Ser Asp Lys Gly Ile Tyr Thr Leu Lys Leu Glu Asn Arg Val
2268           6965                6970                6975
2269 Lys Thr Ile Ser Gly Glu Ile Asp Val Asn Val Ile Ala Arg Pro Ser
2270           6980                6985                6990
2271 Ala Pro Lys Glu Leu Lys Phe Gly Asp Ile Thr Lys Asp Ser Val His
2272      6995                7000                7005
2273 Leu Thr Trp Glu Pro Pro Asp Asp Gly Gly Ser Pro Leu Thr Gly
2274      7010                7015                7020
2275 Tyr Val Val Glu Lys Arg Glu Val Ser Arg Lys Thr Trp Thr Lys Val
2276 7025                7030                7035                7040
2277 Met Asp Phe Val Thr Asp Leu Glu Phe Thr Val Pro Asp Leu Val Gln
2278                7045                7050                7055
2279 Gly Lys Glu Tyr Leu Phe Lys Val Cys Ala Arg Asn Lys Cys Gly Pro
2280      7060                7065                7070
2281 Gly Glu Pro Ala Tyr Val Asp Glu Pro Val Asn Met Ser Thr Pro Ala
2282      7075                7080                7085
2283 Thr Val Pro Asp Pro Pro Glu Asn Val Lys Trp Arg Asp Arg Thr Ala
2284      7090                7095                7100
2285 Asn Ser Ile Phe Leu Thr Trp Asp Pro Pro Lys Asn Asp Gly Gly Ser
2286 7105                7110                7115                7120
2287 Arg Ile Lys Gly Tyr Ile Val Glu Arg Cys Pro Arg Gly Ser Asp Lys
2288           7125                7130                7135
2289 Trp Val Ala Cys Gly Glu Pro Val Ala Glu Thr Lys Met Glu Val Thr
2290           7140                7145                7150
2291 Gly Leu Glu Glu Gly Lys Trp Tyr Ala Tyr Arg Val Lys Thr Leu Asn
2292      7155                7160                7165
2293 Arg Gln Gly Ala Ser Lys Pro Ser Arg Pro Thr Glu Glu Ile Gln Ala
2294      7170                7175                7180
2295 Val Asp Thr Gln Glu Ala Pro Glu Ile Phe Leu Asp Val Lys Leu Leu
2296 7185                7190                7195                7200
2297 Ala Gly Leu Thr Val Lys Ala Gly Thr Lys Ile Glu Leu Pro Ala Thr
2298           7205                7210                7215
2299 Val Thr Gly Lys Pro Glu Pro Lys Ile Thr Trp Thr Lys Ala Asp Met
2300           7220                7225                7230
2301 Ile Leu Lys Gln Asp Lys Arg Ile Thr Ile Glu Asn Val Pro Lys Lys
2302      7235                7240                7245
2303 Ser Thr Val Thr Ile Val Asp Ser Lys Arg Ser Asp Thr Gly Thr Tyr
2304      7250                7255                7260
2305 Ile Ile Glu Ala Val Asn Val Cys Gly Arg Ala Thr Ala Val Val Glu
2306 7265                7270                7275                7280
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2307 Val Asn Val Leu Asp Lys Pro Gly Pro Pro Ala Ala Phe Asp Ile Thr
2308               7285                7290                7295
2309 Asp Val Thr Asn Glu Ser Cys Leu Leu Thr Trp Asn Pro Pro Arg Asp
2310               7300                7305                7310
2311 Asp Gly Gly Ser Lys Ile Thr Asn Tyr Val Val Glu Arg Arg Ala Thr
2312               7315                7320                7325
2313 Asp Ser Glu Val Trp His Lys Leu Ser Ser Thr Val Lys Asp Thr Asn
2314          7330                7335                7340
2315 Phe Lys Ala Thr Lys Leu Ile Pro Asn Lys Glu Tyr Ile Phe Arg Val
2316 7345                7350                7355                7360
2317 Ala Ala Glu Asn Met Tyr Gly Ala Gly Glu Pro Val Gln Ala Ser Pro
2318               7365                7370                7375
2319 Ile Thr Ala Lys Tyr Gln Phe Asp Pro Pro Gly Pro Pro Thr Arg Leu
2320               7380                7385                7390
2321 Glu Pro Ser Asp Ile Thr Lys Asp Ala Val Thr Leu Thr Trp Cys Glu
2322               7395                7400                7405
2323 Pro Asp Asp Asp Gly Gly Ser Pro Ile Thr Gly Tyr Trp Val Glu Arg
2324     7410                7415                7420
2325 Leu Asp Pro Asp Thr Asp Lys Trp Val Arg Cys Asn Lys Met Pro Val
2326 7425                7430                7435                7440
2327 Lys Asp Thr Thr Tyr Arg Val Lys Gly Leu Thr Asn Lys Lys Lys Tyr
2328               7445                7450                7455
2329 Arg Phe Arg Val Leu Ala Glu Asn Leu Ala Gly Pro Gly Lys Pro Ser
2330               7460                7465                7470
2331 Lys Ser Thr Glu Pro Ile Leu Ile Lys Asp Pro Ile Asp Pro Pro Trp
2332          7475                7480                7485
2333 Pro Pro Gly Lys Pro Thr Val Lys Asp Val Gly Lys Thr Ser Val Arg
2334     7490                7495                7500
2335 Leu Asn Trp Thr Lys Pro Glu His Asp Gly Gly Ala Lys Ile Glu Ser
2336 7505                7510                7515                7520
2337 Tyr Val Ile Glu Met Leu Lys Thr Gly Thr Asp Glu Trp Val Arg Val
2338               7525                7530                7535
2339 Ala Glu Gly Val Pro Thr Thr Gln His Leu Leu Pro Gly Leu Met Glu
2340               7540                7545                7550
2341 Gly Gln Glu Tyr Ser Phe Arg Val Arg Ala Val Asn Lys Ala Gly Glu
2342          7555                7560                7565
2343 Ser Glu Pro Ser Glu Pro Ser Asp Pro Val Leu Cys Arg Glu Lys Leu
2344     7570                7575                7580
2345 Tyr Pro Pro Ser Pro Pro Arg Trp Leu Glu Val Ile Asn Ile Thr Lys
2346 7585                7590                7595                7600
2347 Asn Thr Ala Asp Leu Lys Trp Thr Val Pro Glu Lys Asp Gly Gly Ser
2348               7605                7610                7615
2349 Pro Ile Thr Asn Tyr Ile Val Glu Lys Arg Asp Val Arg Arg Lys Gly
2350               7620                7625                7630
2351 Trp Gln Thr Val Asp Thr Thr Val Lys Asp Thr Lys Cys Thr Val Thr
2352          7635                7640                7645
2353 Pro Leu Thr Glu Gly Ser Leu Tyr Val Phe Arg Val Ala Ala Glu Asn
2354     7650                7655                7660
2355 Ala Ile Gly Gln Ser Asp Tyr Thr Glu Ile Glu Asp Ser Val Leu Ala
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2356 7665              7670            7675              7680
2357 Lys Asp Thr Phe Thr Thr Pro Gly Pro Pro Tyr Ala Leu Ala Val Val
2358              7685            7690              7695
2359 Asp Val Thr Lys Arg His Val Asp Leu Lys Trp Glu Pro Pro Lys Asn
2360              7700            7705              7710
2361 Asp Gly Gly Arg Pro Ile Gln Arg Tyr Val Ile Glu Lys Lys Glu Arg
2362              7715            7720              7725
2363 Leu Gly Thr Arg Trp Val Lys Ala Gly Lys Thr Ala Gly Pro Asp Cys
2364              7730            7735              7740
2365 Asn Phe Arg Val Thr Asp Val Ile Glu Gly Thr Glu Val Gln Phe Gln
2366 7745              7750            7755              7760
2367 Val Arg Ala Glu Asn Glu Ala Gly Val Gly His Pro Ser Glu Pro Thr
2368              7765            7770              7775
2369 Glu Ile Leu Ser Ile Glu Asp Pro Thr Ser Pro Pro Ser Pro Pro Leu
2370              7780            7785              7790
2371 Asp Leu His Val Thr Asp Ala Gly Arg Lys His Ile Ala Ile Ala Trp
2372              7795            7800            7805
2373 Lys Pro Pro Glu Lys Asn Gly Gly Ser Pro Ile Ile Gly Tyr His Val
2374      7810            7815            7820
2375 Glu Met Cys Pro Val Gly Thr Glu Lys Trp Met Arg Val Asn Ser Arg
2376 7825              7830            7835              7840
2377 Pro Ile Lys Asp Leu Lys Phe Lys Val Glu Glu Gly Val Val Pro Asp
2378              7845            7850              7855
2379 Lys Glu Tyr Val Leu Arg Val Arg Ala Val Asn Ala Ile Gly Val Ser
2380              7860            7865              7870
2381 Glu Pro Ser Glu Ile Ser Glu Asn Val Val Ala Lys Asp Pro Asp Cys
2382              7875            7880            7885
2383 Lys Pro Thr Ile Asp Leu Glu Thr His Asp Ile Ile Val Ile Glu Gly
2384      7890            7895            7900
2385 Glu Lys Leu Ser Ile Pro Val Pro Phe Arg Ala Val Pro Val Pro Thr
2386 7905              7910            7915              7920
2387 Val Ser Trp His Lys Asp Gly Lys Glu Val Lys Ala Ser Asp Arg Leu
2388              7925            7930              7935
2389 Thr Met Lys Asn Asp His Ile Ser Ala His Leu Glu Val Pro Lys Ser
2390              7940            7945              7950
2391 Val Arg Ala Asp Ala Gly Ile Tyr Thr Ile Thr Leu Glu Asn Lys Leu
2392      7955            7960            7965
2393 Gly Ser Ala Thr Ala Ser Ile Asn Val Lys Val Ile Gly Leu Pro Gly
2394      7970            7975            7980
2395 Pro Cys Lys Asp Ile Lys Ala Ser Asp Ile Thr Lys Ser Ser Cys Lys
2396 7985              7990            7995              8000
2397 Leu Thr Trp Glu Pro Pro Glu Phe Asp Gly Gly Thr Pro Ile Leu His
2398              8005            8010              8015
2399 Tyr Val Leu Glu Arg Arg Glu Ala Gly Arg Arg Thr Tyr Ile Pro Val
2400              8020            8025            8030
2401 Met Ser Gly Glu Asn Lys Leu Ser Trp Thr Val Lys Asp Leu Ile Pro
2402      8035            8040            8045
2403 Asn Gly Glu Tyr Phe Phe Arg Val Lys Ala Val Asn Lys Val Gly Gly
2404      8050            8055            8060
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2405 Gly Glu Tyr Ile Glu Leu Lys Asn Pro Val Ile Ala Gln Asp Pro Lys
2406 8065            8070            8075            8080
2407 Gln Pro Pro Asp Pro Pro Val Asp Val Glu Val His Asn Pro Thr Ala
2408             8085            8090            8095
2409 Glu Ala Met Thr Ile Thr Trp Lys Pro Pro Leu Tyr Asp Gly Gly Ser
2410             8100            8105            8110
2411 Lys Ile Met Gly Tyr Ile Ile Glu Lys Ile Ala Lys Gly Glu Glu Arg
2412     8115            8120            8125
2413 Trp Lys Arg Cys Asn Gln His Leu Val Pro Ile Leu Thr Tyr Thr Ala
2414     8130            8135            8140
2415 Lys Gly Leu Glu Glu Gly Lys Glu Tyr Gln Phe Arg Val Arg Ala Glu
2416 8145            8150            8155            8160
2417 Asn Ala Ala Gly Ile Ser Glu Pro Ser Arg Ala Thr Pro Pro Thr Lys
2418             8165            8170            8175
2419 Ala Val Asp Pro Ile Asp Ala Pro Lys Val Ile Leu Arg Thr Ser Leu
2420             8180            8185            8190
2421 Glu Val Lys Arg Gly Asp Glu Ile Ala Leu Asp Ala Ser Ile Ser Gly
2422     8195            8200            8205
2423 Ser Pro Tyr Pro Thr Ile Thr Trp Ile Lys Asp Glu Asn Val Ile Val
2424     8210            8215            8220
2425 Pro Glu Glu Ile Lys Lys Arg Ala Ala Pro Leu Val Arg Arg Arg Lys
2426 8225            8230            8235            8240
2427 Gly Glu Val Gln Glu Glu Glu Pro Phe Val Leu Pro Leu Thr Gln Arg
2428             8245            8250            8255
2429 Leu Ser Ile Asp Asn Ser Lys Lys Gly Glu Ser Gln Leu Arg Val Arg
2430             8260            8265            8270
2431 Asp Ser Leu Arg Pro Asp His Gly Leu Tyr Met Ile Lys Val Glu Asn
2432     8275            8280            8285
2433 Asp His Gly Ile Ala Lys Ala Pro Cys Thr Val Ser Val Leu Asp Thr
2434     8290            8295            8300
2435 Pro Gly Pro Pro Ile Asn Phe Val Phe Glu Asp Ile Arg Lys Thr Ser
2436 8305            8310            8315            8320
2437 Val Leu Cys Lys Trp Glu Pro Pro Leu Asp Asp Gly Gly Ser Glu Ile
2438             8325            8330            8335
2439 Ile Asn Tyr Thr Leu Glu Lys Lys Asp Lys Thr Lys Pro Asp Ser Glu
2440             8340            8345            8350
2441 Trp Ile Val Val Thr Ser Thr Leu Arg His Cys Lys Tyr Ser Val Thr
2442     8355            8360            8365
2443 Lys Leu Ile Glu Gly Lys Glu Tyr Leu Phe Arg Val Arg Ala Glu Asn
2444     8370            8375            8380
2445 Arg Phe Gly Pro Gly Pro Pro Cys Val Ser Lys Pro Leu Val Ala Lys
2446 8385            8390            8395            8400
2447 Asp Pro Phe Gly Pro Pro Asp Ala Pro Asp Lys Pro Ile Val Glu Asp
2448             8405            8410            8415
2449 Val Thr Ser Asn Ser Met Leu Val Lys Trp Asn Glu Pro Lys Asp Asn
2450             8420            8425            8430
2451 Gly Ser Pro Ile Leu Gly Tyr Trp Leu Glu Lys Arg Glu Val Asn Ser
2452     8435            8440            8445
2453 Thr His Trp Ser Arg Val Asn Lys Ser Leu Leu Asn Ala Leu Lys Ala
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2454      8150                    8455                    8460
2455 Asn Val Asp Gly Leu Leu Glu Gly Leu Thr Tyr Val Phe Arg Val Cys
2456 8465                    8470                    8475                8480
2457 Ala Glu Asn Ala Ala Gly Pro Gly Lys Phe Ser Pro Pro Ser Asp Pro
2458                8485                    8490                    8495
2459 Lys Thr Ala His Asp Pro Ile Ser Pro Pro Gly Pro Pro Ile Pro Arg
2460           8500                    8505                    8510
2461 Val Thr Asp Thr Ser Ser Thr Thr Ile Glu Leu Glu Trp Glu Pro Pro
2462      8515                    8520                    8525
2463 Ala Phe Asn Gly Gly Gly Glu Ile Val Gly Tyr Phe Val Asp Lys Gln
2464      8530                    8535                    8540
2465 Leu Val Gly Thr Asn Lys Trp Ser Arg Cys Thr Glu Lys Met Ile Lys
2466 8545                    8550                    8555                8560
2467 Val Arg Gln Tyr Thr Val Lys Glu Ile Arg Glu Gly Ala Asp Tyr Lys
2468                8565                    8570                    8575
2469 Leu Arg Val Ser Ala Val Asn Ala Ala Gly Glu Gly Pro Pro Gly Glu
2470                8580                    8585                    8590
2471 Thr Gln Pro Val Thr Val Ala Glu Pro Gln Glu Pro Pro Ala Val Glu
2472      8595                    8600                    8605
2473 Leu Asp Val Ser Val Lys Gly Gly Ile Gln Ile Met Ala Gly Lys Thr
2474      8610                    8615                    8620
2475 Leu Arg Ile Pro Ala Val Val Thr Gly Arg Pro Val Pro Thr Lys Val
2476 8625                    8630                    8635                8640
2477 Trp Thr Lys Glu Glu Gly Glu Leu Asp Lys Asp Arg Val Val Ile Asp
2478                8645                    8650                    8655
2479 Asn Val Gly Thr Lys Ser Glu Leu Ile Ile Lys Asp Ala Leu Arg Lys
2480                8660                    8665                    8670
2481 Asp His Gly Arg Tyr Val Ile Thr Ala Thr Asn Ser Cys Gly Ser Lys
2482      8675                    8680                    8685
2483 Phe Ala Ala Ala Arg Val Glu Val Phe Asp Val Pro Gly Pro Val Leu
2484      8690                    8695                    8700
2485 Asp Leu Lys Pro Val Val Thr Asn Arg Lys Met Cys Leu Leu Asn Trp
2486 8705                    8710                    87'5                8720
2487 Ser Asp Pro Glu Asp Asp Gly Gly Ser Glu Ile Thr Gly Phe Ile Ile
2488                8725                    8730                    8735
2489 Glu Arg Lys Asp Ala Lys Met His Thr Trp Arg Gln Pro Ile Glu Thr
2490           8740                    8745                    8750
2491 Glu Arg Ser Lys Cys Asp Ile Thr Gly Leu Leu Glu Gly Gln Glu Tyr
2492           8755                    8760                    8765
2493 Lys Phe Arg Val Ile Ala Lys Asn Lys Phe Gly Cys Gly Pro Pro Val
2494      8770                    8775                    8780
2495 Glu Ile Gly Pro Ile Leu Ala Val Asp Pro Leu Gly Pro Pro Thr Ser
2496 8785                    8790                    8795                8800
2497 Pro Glu Arg Leu Thr Tyr Thr Glu Arg Gln Arg Ser Thr Ile Thr Leu
2498                8805                    8810                    8815
2499 Asp Trp Lys Glu Pro Arg Ser Asn Gly Gly Ser Pro Ile Gln Gly Tyr
2500           8820                    8825                    8830
2501 Ile Ile Glu Lys Arg Arg His Asp Lys Pro Asp Phe Glu Arg Val Asn
2502           8835                    8840                    8845
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2503 Lys Arg Leu Cys Pro Thr Thr Ser Phe Leu Val Glu Asn Leu Asp Glu
2504      8850             8855             8860
2505 His Gln Met Tyr Glu Phe Arg Val Lys Ala Val Asn Glu Ile Gly Glu
2506 8865             8870             8875             8880
2507 Ser Glu Pro Ser Leu Pro Leu Asn Val Val Ile Gln Asp Asp Glu Val
2508             8885             8890             8895
2509 Pro Pro Thr Ile Lys Leu Arg Leu Ser Val Arg Gly Asp Thr Ile Lys
2510      8900             8905             8910
2511 Val Lys Ala Gly Glu Pro Val His Ile Pro Ala Asp Val Thr Gly Leu
2512      8915             8920             8925
2513 Pro Met Pro Lys Ile Glu Trp Ser Lys Asn Glu Thr Val Ile Glu Lys
2514      8930             8935             8940
2515 Pro Thr Asp Ala Leu Gln Ile Thr Lys Glu Glu Val Ser Arg Ser Glu
2516 8945             8950             8955             8960
2517 Ala Lys Thr Glu Leu Ser Ile Pro Lys Ala Val Arg Glu Asp Lys Gly
2518             8965             8970             8975
2519 Thr Tyr Thr Val Thr Ala Ser Asn Arg Leu Gly Ser Val Phe Arg Asn
2520             8980             8985             8990
2521 Val His Val Glu Val Tyr Asp Arg Pro Ser Pro Pro Arg Asn Leu Ala
2522      8995             9000             9005
2523 Val Thr Asp Ile Lys Ala Glu Ser Cys Tyr Leu Thr Trp Asp Ala Pro
2524      9010             9015             9020
2525 Leu Asp Asn Gly Gly Ser Glu Ile Thr His Tyr Val Ile Asp Lys Arg
2526 9025             9030             9035             9040
2527 Asp Ala Ser Arg Lys Lys Ala Glu Trp Glu Glu Val Thr Asn Thr Ala
2528             9045             9050             9055
2529 Val Glu Lys Arg Tyr Gly Ile Trp Lys Leu Ile Pro Asn Gly Gln Tyr
2530             9060             9065             9070
2531 Glu Phe Arg Val Arg Ala Val Asn Lys Tyr Gly Ile Ser Asp Glu Cys
2532      9075             9080             9085
2533 Lys Ser Asp Lys Val Val Ile Gln Asp Pro Tyr Arg Leu Pro Gly Pro
2534      9090             9095             9100
2535 Pro Gly Lys Pro Lys Val Leu Ala Arg Thr Lys Gly Ser Met Leu Val
2536 9105             9110             9115             9120
2537 Ser Trp Thr Pro Pro Leu Asp Asn Gly Gly Ser Pro Ile Thr Gly Tyr
2538             9125             9130             9135
2539 Trp Leu Glu Lys Arg Glu Glu Gly Ser Pro Tyr Trp Ser Arg Val Ser
2540             9140             9145             9150
2541 Arg Ala Pro Ile Thr Lys Val Gly Leu Lys Gly Val Glu Phe Asn Val
2542      9155             9160             9165
2543 Pro Arg Leu Leu Glu Gly Val Lys Tyr Gln Phe Arg Ala Met Ala Ile
2544      9170             9175             9180
2545 Asn Ala Ala Gly Ile Gly Pro Pro Ser Glu Pro Ser Asp Pro Glu Val
2546 9185             9190             9195             9200
2547 Ala Gly Asp Pro Ile Phe Pro Pro Gly Pro Pro Ser Cys Pro Glu Val
2548             9205             9210             9215
2549 Lys Asp Lys Thr Lys Ser Ser Ile Ser Leu Gly Trp Lys Pro Pro Ala
2550      9220             9225             9230
2551 Lys Asp Gly Gly Ser Pro Ile Lys Gly Tyr Ile Val Glu Met Gln Glu
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2552         9235              9240              9245
2553 Glu Gly Thr Thr Asp Trp Lys Arg Val Asn Glu Pro Asp Lys Leu Ile
2554     9250              9255              9260
2555 Thr Thr Cys Glu Cys Val Val Pro Asn Leu Lys Glu Leu Arg Lys Tyr
2556 9265              9270              9275              9280
2557 Arg Phe Arg Val Lys Ala Val Asn Glu Ala Gly Glu Ser Glu Pro Ser
2558              9285              9290              9295
2559 Asp Thr Thr Gly Glu Ile Pro Ala Thr Asp Ile Gln Glu Glu Pro Glu
2560              9300              9305              9310
2561 Val Phe Ile Asp Ile Gly Ala Gln Asp Cys Leu Val Cys Lys Ala Gly
2562     9315              9320              9325
2563 Ser Gln Ile Arg Ile Pro Ala Val Ile Lys Gly Arg Pro Thr Pro Lys
2564     9330              9335              9340
2565 Ser Ser Trp Glu Phe Asp Gly Lys Ala Lys Lys Ala Met Lys Asp Gly
2566 9345              9350              9355              9360
2567 Val His Asp Ile Pro Glu Asp Ala Gln Leu Glu Thr Ala Glu Asn Ser
2568              9365              9370              9375
2569 Ser Val Ile Ile Ile Pro Glu Cys Lys Arg Ser His Thr Gly Lys Tyr
2570              9380              9385              9390
2571 Ser Ile Thr Ala Lys Asn Lys Ala Gly Gln Lys Thr Ala Asn Cys Arg
2572     9395              9400              9405
2573 Val Lys Val Met Asp Val Pro Gly Pro Pro Lys Asp Leu Lys Val Ser
2574     9410              9415              9420
2575 Asp Ile Thr Arg Gly Ser Cys Arg Leu Ser Trp Lys Met Pro Asp Asp
2576 9425         .    9430              9435              9440
2577 Asp Gly Gly Asp Arg Ile Lys Gly Tyr Val Ile Glu Lys Arg Thr Ile
2578              9445              9450              9455
2579 Asp Gly Lys Ala Trp Thr Lys Val Asn Pro Asp Cys Gly Ser Thr Thr
2580              9460              9465              9470
2581 Phe Val Val Pro Asp Leu Leu Ser Glu Gln Gln Tyr Phe Phe Arg Val
2582     9475              9480              9485
2583 Arg Ala Glu Asn Arg Phe Gly Ile Gly Pro Pro Val Glu Thr Ile Gln
2584     9490              9495              9500
2585 Arg Thr Thr Ala Arg Asp Pro Ile Tyr Pro Pro Asp Pro Pro Ile Lys
2586 9505              9510              9515              9520
2587 Leu Lys Ile Gly Leu Ile Thr Lys Asn Thr Val His Leu Ser Trp Lys
2588              9525              9530              9535
2589 Pro Pro Lys Asn Asp Gly Gly Ser Pro Val Thr His Tyr Ile Val Glu
2590              9540              9545              9550
2591 Cys Leu Ala Trp Asp Pro Thr Gly Thr Lys Lys Glu Ala Trp Arg Gln
2592     9555              9560              9565
2593 Cys Asn Lys Arg Asp Val Glu Glu Leu Gln Phe Thr Val Glu Asp Leu
2594     9570              9575              9580
2595 Val Glu Gly Gly Glu Tyr Glu Phe Arg Val Lys Ala Val Asn Ala Ala
2596 9585              9590              9595              9600
2597 Gly Val Ser Lys Pro Ser Ala Thr Val Gly Pro Cys Asp Cys Gln Arg
2598              9605              9610              9615
2599 Pro Asp Met Pro Pro Ser Ile Asp Leu Lys Glu Phe Met Glu Val Glu
2600              9620              9625              9630
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2601 Glu Gly Thr Asn Val Asn Ile Val Ala Lys Ile Lys Gly Val Pro Phe
2602         9635             9640             9645
2603 Pro Thr Leu Thr Trp Phe Lys Ala Pro Pro Lys Lys Pro Asp Asn Lys
2604         9650             9655             9660
2605 Glu Pro Val Leu Tyr Asp Thr His Val Asn Lys Leu Val Val Asp Asp
2606 9665             9670             9675             9680
2607 Thr Cys Thr Leu Val Ile Pro Gln Ser Arg Arg Ser Asp Thr Gly Leu
2608         9685             9690             9695
2609 Tyr Thr Ile Thr Ala Val Asn Asn Leu Gly Thr Ala Ser Lys Glu Met
2610         9700             9705             9710
2611 Arg Leu Asn Val Leu Gly Arg Pro Gly Pro Pro Val Gly Pro Ile Lys
2612         9715             9720             9725
2613 Phe Glu Ser Val Ser Ala Asp Gln Met Thr Leu Ser Trp Phe Pro Pro
2614         9730             9735             9740
2615 Lys Asp Asp Gly Gly Ser Lys Ile Thr Asn Tyr Val Ile Glu Lys Arg
2616 9745             9750             9755             9760
2617 Glu Ala Asn Arg Lys Thr Trp Val His Val Ser Ser Glu Pro Lys Glu
2618         9765             9770             9775
2619 Cys Thr Tyr Thr Ile Pro Lys Leu Leu Glu Gly His Glu Tyr Val Phe
2620         9780             9785             9790
2621 Arg Ile Met Ala Gln Asn Lys Tyr Gly Ile Gly Glu Pro Leu Asp Ser
2622         9795             9800             9805
2623 Glu Pro Glu Thr Ala Arg Asn Leu Phe Ser Val Pro Gly Ala Pro Asp
2624         9810             9815             9820
2625 Lys Pro Thr Val Ser Ser Val Thr Arg Asn Ser Met Thr Val Asn Trp
2626 9825             9830             9835             9840
2627 Glu Glu Pro Glu Tyr Asp Gly Gly Ser Pro Val Thr Gly Tyr Trp Leu
2628         9845             9850             9855
2629 Glu Met Lys Asp Thr Thr Ser Lys Arg Trp Lys Arg Val Asn Arg Asp
2630         9860             9865             9870
2631 Pro Ile Lys Ala Met Thr Leu Gly Val Ser Tyr Lys Val Thr Gly Leu
2632         9875             9880             9885
2633 Ile Glu Gly Ser Asp Tyr Gln Phe Arg Val Tyr Ala Ile Asn Ala Ala
2634         9890             9895             9900
2635 Gly Val Gly Pro Ala Ser Leu Pro Ser Asp Pro Ala Thr Ala Arg Asp
2636 9905             9910             9915             9920
2637 Pro Ile Ala Pro Pro Gly Pro Pro Phe Pro Lys Val Thr Asp Trp Thr
2638         9925             9930             9935
2639 Lys Ser Ser Ala Asp Leu Glu Trp Ser Pro Pro Leu Lys Asp Gly Gly
2640         9940             9945             9950
2641 Ser Lys Val Thr Gly Tyr Ile Val Glu Tyr Lys Glu Glu Gly Lys Glu
2642         9955             9960             9965
2643 Glu Trp Glu Lys Gly Lys Asp Lys Glu Val Arg Gly Thr Lys Leu Val
2644         9970             9975             9980
2645 Val Thr Gly Leu Lys Glu Gly Ala Phe Tyr Lys Phe Arg Val Ser Ala
2646 9985             9990             9995             10000
2647 Val Asn Ile Ala Gly Ile Gly Glu Pro Gly Glu Val Thr Asp Val Ile
2648         10005             10010             10015
2649 Glu Met Lys Asp Arg Leu Val Ser Pro Asp Leu Gln Leu Asp Ala Ser
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        RAW SEQUENCE LISTING                    DATE: 01/29/2001
        PATENT APPLICATION:  US/09/759,508       TIME: 13:24:54

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        Output Set: N:\CRF3\01292001\I759508.raw

      2650          10020           10025           10030
      2651 Val Arg Asp Arg Ile Val Val His Ala Gly Gly Val Ile Arg Ile Ile
      2652     10035           10040           10045
      2653 Ala Tyr Val Ser Gly Lys Pro Pro Pro Thr Val Thr Trp Asn Met Asn
E--> 2654     10050           10055           10060
      2655 Glu Arg Thr Leu Pro Gln Glu Ala Thr Ile Glu Thr Thr Ala Ile Ser
E--> 2656 0065          10070           10075           10080
      2657 Ser Ser Met Val Ile Lys Asn Cys Gln Arg Ser His Gln Gly Val Tyr
      2658          10085           10090           10095
      2659 Ser Leu Leu Ala Lys Asn Glu Ala Gly Glu Arg Lys Lys Thr Ile Ile
      2660     10100           10105           10110
      2661 Val Asp Val Leu Asp Val Pro Gly Pro Val Gly Thr Pro Phe Leu Ala
      2662     10115           10120           10125
      2663 His Asn Leu Thr Asn Glu Ser Cys Lys Leu Thr Trp Phe Ser Pro Glu
E--> 2664     10130           10135           10140
      2665 Asp Asp Gly Gly Ser Pro Ile Thr Asn Tyr Val Ile Glu Lys Arg Glu
E--> 2666 0145          10150           10155           10160
      2667 Ser Asp Arg Arg Ala Trp Thr Pro Val Thr Tyr Thr Val Thr Arg Gln
      2668          10165           10170           10175
      2669 Asn Ala Thr Val Gln Gly Leu Ile Gln Gly Lys Ala Tyr Phe Phe Arg
      2670     10180           10185           10190
      2671 Ile Ala Ala Glu Asn Ser Ile Gly Met Gly Pro Phe Val Glu Thr Ser
      2672     10195           10200           10205
      2673 Glu Ala Leu Val Ile Arg Glu Pro Ile Thr Val Pro Glu Arg Pro Glu
E--> 2674     10210           10215           10220
      2675 Asp Leu Glu Val Lys Glu Val Thr Lys Asn Thr Val Thr Leu Thr Trp
E--> 2676 0225          10230           10235           10240
      2677 Asn Pro Pro Lys Tyr Asp Gly Gly Ser Glu Ile Ile Asn Tyr Val Leu
      2678          10245           10250           10255
      2679 Glu Ser Arg Leu Ile Gly Thr Glu Lys Phe His Lys Val Thr Asn Asp
      2680     10260           10265           10270
      2681 Asn Leu Leu Ser Arg Lys Tyr Thr Val Lys Gly Leu Lys Glu Gly Asp
      2682     10275           10280           10285
      2683 Thr Tyr Glu Tyr Arg Val Ser Ala Val Asn Ile Val Gly Gln Gly Lys
E--> 2684     10290           10295           10300
      2685 Pro Ser Phe Cys Thr Lys Pro Ile Thr Cys Lys Asp Glu Leu Ala Pro
E--> 2686 0305          10310           10315           10320
      2687 Pro Thr Leu His Leu Asp Phe Arg Asp Lys Leu Thr Ile Arg Val Gly
      2688          10325           10330           10335
      2689 Glu Ala Phe Ala Leu Thr Gly Arg Tyr Ser Gly Lys Pro Lys Pro Lys
      2690          10340           10345           10350
      2691 Val Ser Trp Phe Lys Asp Glu Ala Asp Val Leu Glu Asp Asp Arg Thr
      2692     10355           10360           10365
      2693 His Ile Lys Thr Thr Pro Ala Thr Leu Ala Leu Glu Lys Ile Lys Ala
E--> 2694     10370           10375           10380
      2695 Lys Arg Ser Asp Ser Gly Lys Tyr Cys Val Val Val Glu Asn Ser Thr
E--> 2696 0385          10390           10395           10400
      2697 Gly Ser Arg Lys Gly Phe Cys Gln Val Asn Val Val Asp His Pro Gly
      2698          10405           10410           10415
```

Handwritten annotations:

Delete. First numeral is jumping back to previous line.

Glu Arg
1 0065

Asp Asp
1 0145

Asp Leu
10 225

Pro Ser
10305

For left margin numerals, leave enough space between the first two amino acids so the numeral does not fall under any part of the second amino acid. See examples at left.

*Please note that this error occurs throughout the rest of sequence #2. Please correct all instances.

1/29/01

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   2699 Pro Pro Val Gly Pro Val Ser Phe Asp Glu Val Thr Lys Asp Tyr Met
   2700          10420              10425              10430
   2701 Val Ile Ser Trp Lys Pro Pro Leu Asp Asp Gly Gly Ser Lys Ile Thr
   2702      10435              10440              10445
   2703 Asn Tyr Ile Ile Glu Lys Lys Glu Val Gly Lys Asp Val Trp Met Pro
E--> 2704 10450              10455              10460              1
   2705 Val Thr Ser Ala Ser Ala Lys Thr Thr Cys Lys Val Ser Lys Leu Leu
E--> 2706 0465              10470              10475              10480
   2707 Glu Gly Lys Asp Tyr Ile Phe Arg Ile His Ala Glu Asn Leu Tyr Gly
   2708          10485              10490              10495
   2709 Ile Ser Asp Pro Leu Val Ser Asp Ser Met Lys Ala Lys Asp Arg Phe
   2710      10500              10505              10510
   2711 Arg Val Pro Asp Ala Pro Asp Gln Pro Ile Val Thr Glu Val Thr Lys
   2712      10515              10520              10525
   2713 Asp Ser Ala Leu Val Thr Trp Asn Lys Pro His Asp Gly Gly Lys Pro
E--> 2714 10530              10535              10540              1
   2715 Ile Thr Asn Tyr Ile Leu Glu Lys Arg Glu Thr Met Ser Lys Arg Trp
E--> 2716 0545              10550              10555              10560
   2717 Ala Arg Val Thr Lys Asp Pro Ile His Pro Tyr Thr Lys Phe Arg Val
   2718          10565              10570              10575
   2719 Pro Asp Leu Leu Glu Gly Cys Gln Tyr Glu Phe Arg Val Ser Ala Glu
   2720          10580              10585              10590
   2721 Asn Glu Ile Gly Ile Gly Asp Pro Ser Pro Pro Ser Lys Pro Val Phe
   2722          10595              10600              10605
   2723 Ala Lys Asp Pro Ile Ala Lys Pro Ser Pro Pro Val Asn Pro Glu Ala
E--> 2724 10610              10615              10620              1
   2725 Ile Asp Thr Thr Cys Asn Ser Val Asp Leu Thr Trp Gln Pro Pro Arg
E--> 2726 0625              10630              10635              10640
   2727 His Asp Gly Gly Ser Lys Ile Leu Gly Tyr Ile Val Glu Tyr Gln Lys
   2728          10645              10650              10655
   2729 Val Gly Asp Glu Glu Trp Arg Arg Ala Asn His Thr Pro Glu Ser Cys
   2730          10660              10665              10670
   2731 Pro Glu Thr Lys Tyr Lys Val Thr Gly Leu Arg Asp Gly Gln Thr Tyr
   2732          10675              10680              10685
   2733 Lys Phe Arg Val Leu Ala Val Asn Ala Ala Gly Glu Ser Asp Pro Ala
E--> 2734 10690              10695              10700              1
   2735 His Val Pro Glu Pro Val Leu Val Lys Asp Arg Leu Glu Pro Pro Glu
E--> 2736 0705              10710              10715              10720
   2737 Leu Ile Leu Asp Ala Asn Met Ala Arg Glu Gln His Ile Lys Val Gly
   2738          10725              10730              10735
   2739 Asp Thr Leu Arg Leu Ser Ala Ile Ile Lys Gly Val Pro Phe Pro Lys
   2740          10740              10745              10750
   2741 Val Thr Trp Lys Lys Glu Asp Arg Asp Ala Pro Thr Lys Ala Arg Ile
   2742          10755              10760              10765
   2743 Asp Val Thr Pro Val Gly Ser Lys Leu Glu Ile Arg Asn Ala Ala His
E--> 2744 10770              10775              10780              1
   2745 Glu Asp Gly Gly Ile Tyr Ser Leu Thr Val Glu Asn Pro Ala Gly Ser
E--> 2746 0785              10790              10795              10800
   2747 Lys Thr Val Ser Val Lys Val Leu Val Leu Asp Lys Pro Gly Pro Pro
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        2748            10805            10810            10815
        2749 Arg Asp Leu Glu Val Ser Glu Ile Arg Lys Asp Ser Cys Tyr Leu Thr
        2750            10820            10825            10830
        2751 Trp Lys Glu Pro Leu Asp Asp Gly Gly Ser Val Ile Thr Asn Tyr Val
        2752            10835            10840            10845
        2753 Val Glu Arg Arg Asp Val Ala Ser Ala Gln Trp Ser Pro Leu Ser Ala
E--> 2754            10850            10855            10860            1
        2755 Thr Ser Lys Lys Lys Ser His Phe Ala Lys His Leu Asn Glu Gly Asn
E--> 2756 0865            10870            10875            10880
        2757 Gln Tyr Leu Phe Arg Val Ala Ala Glu Asn Gln Tyr Gly Arg Gly Pro
        2758            10885            10890            10895
        2759 Phe Val Glu Thr Pro Lys Pro Ile Lys Ala Leu Asp Pro Leu His Pro
        2760            10900            10905            10910
        2761 Pro Gly Pro Pro Lys Asp Leu His His Val Asp Val Asp Lys Thr Glu
        2762            10915            10920            10925
        2763 Val Ser Leu Val Trp Asn Lys Pro Asp Arg Asp Gly Gly Ser Pro Ile
E--> 2764            10930            10935            10940            1
        2765 Thr Gly Tyr Leu Val Glu Tyr Gln Glu Glu Gly Thr Gln Asp Trp Ile
E--> 2766 0945            10950            10955            10960
        2767 Lys Phe Lys Thr Val Thr Asn Leu Glu Cys Val Val Thr Gly Leu Gln
        2768            10965            10970            10975
        2769 Gln Gly Lys Thr Tyr Arg Phe Arg Val Lys Ala Glu Asn Ile Val Gly
        2770            10980            10985            10990
        2771 Leu Gly Leu Pro Asp Thr Thr Ile Pro Ile Glu Cys Gln Glu Lys Leu
        2772            10995            11000            11005
        2773 Val Pro Pro Ser Val Glu Leu Asp Val Lys Leu Ile Glu Gly Leu Val
E--> 2774            11010            11015            11020            1
        2775 Val Lys Ala Gly Thr Thr Val Arg Phe Pro Ala Ile Ile Arg Gly Val
E--> 2776 1025            11030            11035            11040
        2777 Pro Val Pro Thr Ala Lys Trp Thr Thr Asp Gly Ser Glu Ile Lys Thr
        2778            11045            11050            11055
        2779 Asp Glu His Tyr Thr Val Glu Thr Asp Asn Phe Ser Ser Val Leu Thr
        2780            11060            11065            11070
        2781 Ile Lys Asn Cys Leu Arg Arg Asp Thr Gly Glu Tyr Gln Ile Thr Val
        2782            11075            11080            11085
        2783 Ser Asn Ala Ala Gly Ser Lys Thr Val Ala Val His Leu Thr Val Leu
E--> 2784            11090            11095            11100            1
        2785 Asp Val Pro Gly Pro Pro Thr Gly Pro Ile Asn Ile Leu Asp Val Thr
E--> 2786 1105            11110            11115            11120
        2787 Pro Glu His Met Thr Ile Ser Trp Gln Pro Pro Lys Asp Asp Gly Gly
        2788            11125            11130            11135
        2789 Ser Pro Val Ile Asn Tyr Ile Val Glu Lys Gln Asp Thr Arg Lys Asp
        2790            11140            11145            11150
        2791 Thr Trp Gly Val Val Ser Ser Gly Ser Ser Lys Thr Lys Leu Lys Ile
        2792            11155            11160            11165
        2793 Pro His Leu Gln Lys Gly Cys Glu Tyr Val Phe Arg Val Arg Ala Glu
E--> 2794            11170            11175            11180            1
        2795 Asn Lys Ile Gly Val Gly Pro Pro Leu Asp Ser Thr Pro Thr Val Ala
E--> 2796 1185            11190            11195            11200
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      2797 Lys His Lys Phe Ser Pro Pro Ser Pro Pro Gly Lys Pro Val Val Thr
      2798            11205              11210              11215
      2799 Asp Ile Thr Glu Asn Ala Ala Thr Val Ser Trp Thr Leu Pro Lys Ser
      2800            11220              11225              11230
      2801 Asp Gly Gly Ser Pro Ile Thr Gly Tyr Tyr Met Glu Arg Arg Glu Val
      2802         11235              11240              11245
      2803 Thr Gly Lys Trp Val Arg Val Asn Lys Thr Pro Ile Ala Asp Leu Lys
E--> 2804     11250              11255              11260            1
      2805 Phe Arg Val Thr Gly Leu Tyr Glu Gly Asn Thr Tyr Glu Phe Arg Val
E--> 2806 1265            11270              11275              11280
      2807 Phe Ala Glu Asn Leu Ala Gly Leu Ser Lys Pro Ser Pro Ser Ser Asp
      2808            11285              11290              11295
      2809 Pro Ile Lys Ala Cys Arg Pro Ile Lys Pro Pro Gly Pro Pro Ile Asn
      2810         11300              11305              11310
      2811 Pro Lys Leu Lys Asp Lys Ser Arg Glu Thr Ala Asp Leu Val Trp Thr
      2812         11315              11320              11325
      2813 Lys Pro Leu Ser Asp Gly Gly Ser Pro Ile Leu Gly Tyr Val Val Glu
E--> 2814     11330              11335              11340            1
      2815 Cys Gln Lys Pro Gly Thr Ala Gln Trp Asn Arg Ile Asn Lys Asp Glu
E--> 2816 1345            11350              11355              11360
      2817 Leu Ile Arg Gln Cys Ala Phe Arg Val Pro Gly Leu Ile Glu Gly Asn
      2818            11365              11370              11375
      2819 Glu Tyr Arg Phe Arg Ile Lys Ala Ala Asn Ile Val Gly Glu Gly Glu
      2820         .     11380              11385              11390
      2821 Pro Arg Glu Leu Ala Glu Ser Val Ile Ala Lys Asp Ile Leu His Pro
      2822         11395             ·11400              11405
      2823 Pro Glu Val Glu Leu Asp Val Thr Cys Arg Asp Val Ile Thr Val Arg
E--> 2824     11410              11415              11420            1
      2825 Val Gly Gln Thr Ile Arg Ile Leu Ala Arg Val Lys Gly Arg Pro Glu
E--> 2826 1425            11430              11435              11440
      2827 Pro Asp Ile Thr Trp Thr Lys Glu Gly Lys Val Leu Val Arg Glu Lys
      2828            11445              11450              11455
      2829 Arg Val Asp Leu Ile Gln Asp Leu Pro Arg Val Glu Leu Gln Ile Lys
      2830         11460              11465              11470
      2831 Glu Ala Val Arg Ala Asp His Gly Lys Tyr Ile Ile Ser Ala Lys Asn
      2832         11475              11480              11485
      2833 Ser Ser Gly His Ala Gln Gly Ser Ala Ile Val Asn Val Leu Asp Arg
E--> 2834     11490              11495              11500            1
      2835 Pro Gly Pro Cys Gln Asn Leu Lys Val Thr Asn Val Thr Lys Glu Asn
E--> 2836 1505            11510              11515              11520
      2837 Cys Thr Ile Ser Trp Glu Asn Pro Leu Asp Asn Gly Gly Ser Glu Ile
      2838            11525              11530              11535
      2839 Thr Asn Phe Ile Val Glu Tyr Arg Lys Pro Asn Gln Lys Gly Trp Ser
      2840         11540              11545              11550
      2841 Ile Val Ala Ser Asp Val Thr Lys Arg Leu Ile Lys Ala Asn Leu Leu
      2842         11555              11560              11565
      2843 Ala Asn Asn Glu Tyr Tyr Phe Arg Val Cys Ala Glu Asn Lys Val Gly
E--> 2844     11570              11575              11580            1
      2845 Val Gly Pro Thr Ile Glu Thr Lys Thr Pro Ile Leu Ala Ile Asn Pro
```

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E--> 2846 1585           11590           11595           11600
     2847 Ile Asp Arg Pro Gly Glu Pro Glu Asn Leu His Ile Ala Asp Lys Gly
     2848           11605           11610           11615
     2849 Lys Thr Phe Val Tyr Leu Lys Trp Arg Arg Pro Asp Tyr Asp Gly Gly
     2850      11620           11625           11630
     2851 Ser Pro Asn Leu Ser Tyr His Val Glu Arg Arg Leu Lys Gly Ser Asp
     2852      11635           11640           11645
     2853 Asp Trp Glu Arg Val His Lys Gly Ser Ile Lys Glu Thr His Tyr Met
E--> 2854      11650           11655           11660           1
     2855 Val Asp Arg Cys Val Glu Asn Gln Ile Tyr Glu Phe Arg Val Gln Thr
E--> 2856 1665           11670           11675           11680
     2857 Lys Asn Glu Gly Gly Glu Ser Asp Trp Val Lys Thr Glu Glu Val Val
     2858           11685           11690           11695
     2859 Val Lys Glu Asp Leu Gln Lys Pro Val Leu Asp Leu Lys Leu Ser Gly
     2860      11700           11705           11710
     2861 Val Leu Thr Val Lys Ala Gly Asp Thr Ile Arg Leu Glu Ala Gly Val
     2862      11715           11720           11725
     2863 Arg Gly Lys Pro Phe Pro Glu Val Ala Trp Thr Lys Asp Lys Asp Ala
E--> 2864      11730           11735           11740           1
     2865 Thr Asp Leu Thr Arg Ser Pro Arg Val Lys Ile Asp Thr Arg Ala Asp
E--> 2866 1745           11750           11755           11760
     2867 Ser Ser Lys Phe Ser Leu Thr Lys Ala Lys Arg Ser Asp Gly Gly Lys
     2868           11765           11770           11775
     2869 Tyr Val Val Thr Ala Thr Asn Thr Ala Gly Ser Phe Val Ala Tyr Ala
     2870      11780           11785           11790
     2871 Thr Val Asn Val Leu Asp Lys Pro Gly Pro Val Arg Asn Leu Lys Ile
     2872      11795           11800           11805
     2873 Val Asp Val Ser Ser Asp Arg Cys Thr Val Cys Trp Asp Pro Pro Glu
E--> 2874      11810           11815           11820           1
     2875 Asp Asp Gly Gly Cys Glu Ile Gln Asn Tyr Ile Leu Glu Lys Cys Glu
E--> 2876 1825           11830           11835           11840
     2877 Thr Lys Arg Met Val Trp Ser Thr Tyr Ser Ala Thr Val Leu Thr Pro
     2878           11845           11850           11855
     2879 Gly Thr Thr Val Thr Arg Leu Ile Glu Gly Asn Glu Tyr Ile Phe Arg
     2880           11860           11865           11870
     2881 Val Arg Ala Glu Asn Lys Ile Gly Thr Gly Pro Pro Thr Glu Ser Lys
     2882      11875           11880           11885
     2883 Pro Val Ile Ala Lys Thr Lys Tyr Asp Lys Pro Gly Arg Pro Asp Pro
E--> 2884      11890           11895           11900           1
     2885 Pro Glu Val Thr Lys Val Ser Lys Glu Glu Met Thr Val Val Trp Asn
E--> 2886 1905           11910           11915           11920
     2887 Pro Pro Glu Tyr Asp Gly Gly Lys Ser Ile Thr Gly Tyr Phe Leu Glu
     2888           11925           11930           11935  .
     2889 Lys Lys Glu Lys His Ser Thr Arg Trp Val Pro Val Asn Lys Ser Ala
     2890      11940           11945           11950
     2891 Ile Pro Glu Arg Arg Met Lys Val Gln Asn Leu Leu Pro Asp His Glu
     2892      11955           11960           11965
     2893 Tyr Gln Phe Arg Val Lys Ala Glu Asn Glu Ile Gly Ile Gly Glu Pro
E--> 2894      11970           11975           11980           1
```

```
                      RAW SEQUENCE LISTING            DATE: 01/29/2001
                      PATENT APPLICATION:  US/09/759,508    TIME: 13:24:54

                      Input Set : A:\00786.381002.SEQLIST.TXT
                      Output Set: N:\CRF3\01292001\I759508.raw

         2895 Ser Leu Pro Ser Arg Pro Val Val Ala Lys Asp Pro Ile Glu Pro Pro
E--> 2896 1985           11990               11995                  12000
         2897 Gly Pro Pro Thr Asn Phe Arg Val Val Asp Thr Thr Lys His Ser Ile
         2898           12005               12010               12015
         2899 Thr Leu Gly Trp Gly Lys Pro Val Tyr Asp Gly Gly Ala Pro Ile Ile
         2900           12020               12025           12030
         2901 Gly Tyr Val Val Glu Met Arg Pro Lys Ile Ala Asp Ala Ser Pro Asp
         2902           12035               12040           12045
         2903 Glu Gly Trp Lys Arg Cys Asn Ala Ala Ala Gln Leu Val Arg Lys Glu
E--> 2904    12050           12055               12060                  1
         2905 Phe Thr Val Thr Ser Leu Asp Glu Asn Gln Glu Tyr Glu Phe Arg Val
E--> 2906 2065           12070               12075                  12080
         2907 Cys Ala Gln Asn Gln Val Gly Ile Gly Arg Pro Ala Glu Leu Lys Glu
         2908           12085               12090           12095
         2909 Ala Ile Lys Pro Lys Glu Ile Leu Glu Pro Pro Glu Ile Asp Leu Asp
         2910           12100               12105           12110
         2911 Ala Ser Met Arg Lys Leu Val Ile Val Arg Ala Gly Cys Pro Ile Arg
         2912           12115               12120           12125
         2913 Leu Phe Ala Ile Val Arg Gly Arg Pro Ala Pro Lys Val Thr Trp Arg
E--> 2914    12130           12135               12140                  1
         2915 Lys Val Gly Ile Asp Asn Val Val Arg Lys Gly Gln Val Asp Leu Val
E--> 2916 2145           12150               12155                  12160
         2917 Asp Thr Met Ala Phe Leu Val Ile Pro Asn Ser Thr Arg Asp Asp Ser
         2918           12165               12170               12175
         2919 Gly Lys Tyr Ser Leu Thr Leu Val Asn Pro Ala Gly Glu Lys Ala Val
         2920           12180               12185           12190
         2921 Phe Val Asn Val Arg Val Leu Asp Thr Pro Gly Pro Val Ser Asp Leu
         2922           12195               12200           12205
         2923 Lys Val Ser Asp Val Thr Lys Thr Ser Cys His Val Ser Trp Ala Pro
E--> 2924    12210           12215               12220                  1
         2925 Pro Glu Asn Asp Gly Gly Ser Gln Val Thr His Tyr Ile Val Glu Lys
E--> 2926 2225           12230               12235                  12240
         2927 Arg Glu Ala Asp Arg Lys Thr Trp Ser Thr Val Thr Pro Glu Val Lys
         2928           12245               12250           12255
         2929 Lys Thr Ser Phe His Val Thr Asn Leu Val Pro Gly Asn Glu Tyr Tyr
         2930           12260               12265           12270
         2931 Phe Arg Val Thr Ala Val Asn Glu Tyr Gly Pro Gly Val Pro Thr Asp
         2932           12275               12280           12285
         2933 Val Pro Lys Pro Val Leu Ala Ser Asp Pro Leu Ser Glu Pro Asp Pro
E--> 2934    12290           12295               12300                  1
         2935 Pro Arg Lys Leu Glu Ala Thr Glu Met Thr Lys Asn Ser Ala Thr Leu
E--> 2936 2305           12310               12315               12320
         2937 Ala Trp Leu Pro Pro Leu Arg Asp Gly Gly Ala Lys Ile Asp Gly Tyr
         2938           12325               12330           12335
         2939 Ile Ile Ser Tyr Arg Glu Glu Gln Pro Ala Asp Arg Trp Thr Glu
         2940           12340               12345           12350
         2941 Tyr Ser Val Val Lys Asp Leu Ser Leu Val Val Thr Gly Leu Lys Glu
         2942           12355               12360           12365
         2943 Gly Lys Lys Tyr Lys Phe Arg Val Ala Ala Arg Asn Ala Val Gly Val
```

```
                    RAW SEQUENCE LISTING          DATE: 01/29/2001
                    PATENT APPLICATION:  US/09/759,508    TIME: 13:24:54

                    Input Set : A:\00786.381002.SEQLIST.TXT
                    Output Set: N:\CRF3\01292001\I759508.raw

E--> 2944    12370                12375                12380            1
     2945 Ser Leu Pro Arg Glu Ala Glu Gly Val Tyr Glu Ala Lys Glu Gln Leu
E--> 2946 2385             12390                12395             12400
     2947 Leu Pro Pro Lys Ile Leu Met Pro Glu Gln Ile Thr Ile Lys Ala Gly
     2948            12405            12410             12415
     2949 Lys Lys Leu Arg Ile Glu Ala His Val Tyr Gly Lys Pro His Pro Thr
     2950   ·         12420            12425           12430
     2951 Cys Lys Trp Lys Lys Gly Glu Asp Glu Val Val Thr Ser Ser His Leu
     2952        12435            12440            12445
     2953 Ala Val His Lys Ala Asp Ser Ser Ser Ile Leu Ile Ile Lys Asp Val
E--> 2954    12450                12455                12460            1
     2955 Thr Arg Lys Asp Ser Gly Tyr Tyr Ser Leu Thr Ala Glu Asn Ser Ser
E--> 2956 2465             12470                12475             12480
     2957 Gly Thr Asp Thr Gln Lys Ile Lys Val Val Val Met Asp Ala Pro Gly
     2958            12485            12490            12495
     2959 Pro Pro Gln Pro Pro Phe Asp Ile Ser Asp Ile Asp Ala Asp Ala Cys
     2960        12500            12505            12510
     2961 Ser Leu Ser Trp His Ile Pro Leu Glu Asp Gly Gly Ser Asn Ile Thr
     2962        12515            12520            12525
     2963 Asn Tyr Ile Val Glu Lys Cys Asp Val Ser Arg Gly Asp Trp Val Thr
E--> 2964    12530                12535                12540            1
     2965 Ala Leu Ala Ser Val Thr Lys Thr Ser Cys Arg Val Gly Lys Leu Ile
E--> 2966 2545             12550                12555             12560
     2967 Pro Gly Glu Glu Tyr Ile Phe Arg Val Arg Ala Glu Asn Arg Phe Gly
     2968            12565            12570           · 12575
     2969 Ile Ser Glu Pro Leu Thr Ser Pro Lys Met Val Ala Gln Phe Pro Phe
     2970        12580            12585            12590
     2971 Gly Val Pro Ser Glu Pro Lys Asn Ala Arg Val Thr Lys Val Asn Lys
     2972        12595            12600           _ 12605
     2973 Asp Cys Ile Phe Val Ala Trp Asp Arg Pro Asp Ser Asp Gly Gly Ser
E--> 2974    12610                12615                12620            1
     2975 Pro Ile Ile Gly Tyr Leu Ile Glu Arg Lys Glu Arg Asn Ser Leu Leu
E--> 2976 2625             12630                12635             12640
     2977 Trp Val Lys Ala Asn Asp Thr Leu Val Arg Ser Thr Glu Tyr Pro Cys
     2978            12645            12650            12655
     2979 Ala Gly Leu Val Glu Gly Leu Glu Tyr Ser Phe Arg Ile Tyr Ala Leu
     2980            12660            12665            12670
     2981 Asn Lys Ala Gly Ser Ser Pro Pro Ser Lys Pro Thr Glu Tyr Val Thr
     2982        12675            12680            12685
     2983 Ala Arg Met Pro Val Asp Pro Pro Gly Lys Pro Glu Val Ile Asp Val
E--> 2984    12690                12695                12700            1
     2985 Thr Lys Ser Thr Val Ser Leu Ile Trp Ala Arg Pro Lys His Asp Gly
E--> 2986 2705             12710                12715             12720
     2987 Gly Ser Lys Ile Ile Gly Tyr Phe Val Glu Ala Cys Lys Leu Pro Gly
     2988            12725            12730            12735
     2989 Asp Lys Trp Val Arg Cys Asn Thr Ala Pro His Gln Ile Pro Gln Glu
     2990        12740            12745            12750
     2991 Glu Tyr Thr Ala Thr Gly Leu Glu Glu Lys Ala Gln Tyr Gln Phe Arg
     2992        12755            12760            12765
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        2993 Ala Ile Ala Arg Thr Ala Val Asn Ile Ser Pro Pro Ser Glu Pro Ser
E--> 2994    12770           12775            12780                1
        2995 Asp Pro Val Thr Ile Leu Ala Glu Asn Val Pro Pro Arg Ile Asp Leu
E--> 2996 2785          12790            12795                12800
        2997 Ser Val Ala Met Lys Ser Leu Leu Thr Val Lys Ala Gly Thr Asn Val
        2998         , 12805            12810               12815
        2999 Cys Leu Asp Ala Thr Val Phe Gly Lys Pro Met Pro Thr Val Ser Trp
        3000         12820            12825            12830
        3001 Lys Lys Asp Gly Thr Leu Leu Lys Pro Ala Glu Gly Ile Lys Met Ala
        3002        12835           12840            12845
        3003 Met Gln Arg Asn Leu Cys Thr Leu Glu Leu Phe Ser Val Asn Arg Lys
E--> 3004    12850           12855            12860                1
        3005 Asp Ser Gly Asp Tyr Thr Ile Thr Ala Glu Asn Ser Ser Gly Ser Lys
E--> 3006 2865          12870            12875               12880
        3007 Ser Ala Thr Ile Lys Leu Lys Val Leu Asp Lys Pro Gly Pro Pro Ala
        3008         12885            12890               12895
        3009 Ser Val Lys Ile Asn Lys Met Tyr Ser Asp Arg Ala Met Leu Ser Trp
        3010        12900            12905            12910
        3011 Glu Pro Pro Leu Glu Asp Gly Gly Ser Glu Ile Thr Asn Tyr Ile Val
        3012        12915            12920            12925
        3013 Asp Lys Arg Glu Thr Ser Arg Pro Asn Trp Ala Gln Val Ser Ala Thr
E--> 3014    12930            12935            12940                1
        3015 Val Pro Ile Thr Ser Cys Ser Val Glu Lys Leu Ile Glu Gly His Glu
E--> 3016 2945          12950            12955               12960
        3017 Tyr Gln Phe Arg Ile Cys Ala Glu Asn Lys Tyr Gly Val Gly Asp Pro
        3018         12965            12970               12975
        3019 Val Phe Thr Glu Pro Ala Ile Ala Lys Asn Pro Tyr Asp Pro Pro Gly
        3020         12980            12985            12990
        3021 Arg Cys Asp Pro Pro Val Ile Ser Asn Ile Thr Lys Asp His Met Thr
        3022        12995            13000            13005
        3023 Val Ser Trp Lys Pro Pro Ala Asp Asp Gly Gly Ser Pro Ile Thr Gly
E--> 3024    13010            13015            13020                1
        3025 Tyr Leu Leu Glu Lys Arg Glu Thr Gln Ala Val Asn Trp Thr Lys Val
E--> 3026 3025          13030            13035               13040
        3027 Asn Arg Lys Pro Ile Ile Glu Arg Thr Leu Lys Ala Thr Gly Leu Gln
        3028         13045            13050               13055
        3029 Glu Gly Thr Glu Tyr Glu Phe Arg Val Thr Ala Ile Asn Lys Ala Gly
        3030         13060            13065               13070
        3031 Pro Gly Lys Pro Ser Asp Ala Ser Lys Ala Ala Tyr Ala Arg Asp Pro
        3032        13075            13080               13085
        3033 Gln Tyr Pro Pro Ala Pro Pro Ala Phe Pro Lys Val Tyr Asp Thr Thr
E--> 3034    13090            13095            13100                1
        3035 Arg Ser Ser Val Ser Leu Ser Trp Gly Lys Pro Ala Tyr Asp Gly Gly
E--> 3036 3105          13110            13115               13120
        3037 Ser Pro Ile Ile Gly Tyr Leu Val Glu Val Lys Arg Ala Asp Ser Asp
        3038         13125            13130               13135
        3039 Asn Trp Val Arg Cys Asn Leu Pro Gln Asn Leu Gln Lys Thr Arg Phe
        3040        13140            13145               13150
        3041 Glu Val Thr Gly Leu Met Glu Asp Thr Gln Tyr Gln Phe Arg Val Tyr
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        3042        13155            13160            13165
        3043 Ala Val Asn Lys Ile Gly Tyr Ser Asp Pro Ser Asp Val Pro Asp Lys
E-->    3044        13170            13175            13180                1
        3045 His Tyr Pro Lys Asp Ile Leu Ile Pro Pro Glu Gly Glu His Asp Ala
E-->    3046 3185            13190            13195            13200
        3047 Asp Leu Arg Lys Thr Leu Ile Leu Arg Ala Gly Val Thr Met Arg Leu
        3048        13205            13210            13215
        3049 Tyr Val Pro Val Lys Gly Arg Pro Pro Lys Ile Thr Trp Ser Lys
        3050        13220            13225            13230
        3051 Pro Asn Val Asn Leu Arg Asp Arg Ile Gly Leu Asp Ile Lys Ser Thr
        3052        13235            13240            13245
        3053 Asp Phe Asp Thr Phe Leu Arg Cys Glu Asn Val Asn Lys Tyr Asp Ala
E-->    3054        13250            13255            13260                1
        3055 Gly Lys Tyr Ile Leu Thr Leu Glu Asn Ser Cys Gly Lys Lys Glu Tyr
E-->    3056 3265            13270            13275            13280
        3057 Thr Ile Val Val Lys Val Leu Asp Thr Pro Gly Pro Pro Ile Asn Val
        3058        13285            13290            13295
        3059 Thr Val Lys Glu Ile Ser Lys Asp Ser Ala Tyr Val Thr Trp Glu Pro
        3060        13300            13305            13310
        3061 Pro Ile Ile Asp Gly Gly Ser Pro Ile Ile Asn Tyr Val Val Gln Lys
        3062        13315            13320            13325
        3063 Arg Asp Ala Glu Arg Lys Ser Trp Ser Thr Val Thr Thr Glu Cys Ser
E-->    3064        13330            13335            13340                1
        3065 Lys Thr Ser Phe Arg Val Pro Asn Leu Glu Glu Gly Lys Ser Tyr Phe
E-->    3066 3345            13350            13355            13360
        3067 Phe Arg Val Phe Ala Glu Asn Glu Tyr Gly Ile Gly Asp Pro Gly Glu
        3068        13365            13370            13375
        3069 Thr Arg Asp Ala Val Lys Ala Ser Gln Thr Pro Gly Pro Val Val Asp
        3070        13380            13385            13390
        3071 Leu Lys Val Arg Ser Val Ser Lys Ser Ser Cys Ser Ile Gly Trp Lys
        3072        13395            13400            13405
        3073 Lys Pro His Ser Asp Gly Gly Ser Arg Ile Ile Gly Tyr Val Val Asp
E-->    3074        13410            13415            13420                1
        3075 Phe Leu Thr Glu Glu Asn Lys Trp Gln Arg Val Met Lys Ser Leu Ser
E-->    3076 3425            13430            13435            13440
        3077 Leu Gln Tyr Ser Ala Lys Asp Leu Thr Glu Gly Lys Glu Tyr Thr Phe
        3078        13445            13450            13455
        3079 Arg Val Ser Ala Glu Asn Glu Asn Gly Glu Gly Thr Pro Ser Glu Ile
        3080        13460            13465            13470
        3081 Thr Val Val Ala Arg Asp Asp Val Val Ala Pro Asp Leu Asp Leu Lys
        3082        13475            13480            13485
        3083 Gly Leu Pro Asp Leu Cys Tyr Leu Ala Lys Glu Asn Ser Asn Phe Arg
E-->    3084        13490            13495            13500                1
        3085 Leu Lys Ile Pro Ile Lys Gly Lys Pro Ala Pro Ser Val Ser Trp Lys
E-->    3086 3505            13510            13515            13520
        3087 Lys Gly Glu Asp Pro Leu Ala Thr Asp Thr Arg Val Ser Val Glu Ser
        3088        13525            13530            13535
        3089 Ser Ala Val Asn Thr Thr Leu Ile Val Tyr Asp Cys Gln Lys Ser Asp
        3090        13540            13545            13550
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        3091 Ala Gly Lys Tyr Thr Ile Thr Leu Lys Asn Val Ala Gly Thr Lys Glu
        3092       13555             13560             13565
        3093 Gly Thr Ile Ser Ile Lys Val Val Gly Lys Pro Gly Ile Pro Thr Gly
E--> 3094       13570             13575             13580             1
        3095 Pro Ile Lys Phe Asp Glu Val Thr Ala Glu Ala Met Thr Leu Lys Trp
E--> 3096 3585             13590             13595             13600
        3097 Ala Pro Pro Lys Asp Asp Gly Gly Ser Glu Ile Thr Asn Tyr Ile Leu
        3098             13605             13610             13615
        3099 Glu Lys Arg Asp Ser Val Asn Asn Lys Trp Val Thr Cys Ala Ser Ala
        3100             13620             13625             13630
        3101 Val Gln Lys Thr Thr Phe Arg Val Thr Arg Leu His Glu Gly Met Glu
        3102       13635             13640             13645
        3103 Tyr Thr Phe Arg Val Ser Ala Glu Asn Lys Tyr Gly Val Gly Glu Gly
E--> 3104       13650             13655             13660             1
        3105 Leu Lys Ser Glu Pro Ile Val Ala Arg His Pro Phe Asp Val Pro Asp
E--> 3106 3665             13670             13675             13680
        3107 Ala Pro Pro Pro Asn Ile Val Asp Val Arg His Asp Ser Val Ser
        3108             13685             13690             13695
        3109 Leu Thr Trp Thr Asp Pro Lys Lys Thr Gly Gly Ser Pro Ile Thr Gly
        3110             13700             13705             13710
        3111 Tyr His Leu Glu Phe Lys Glu Arg Asn Ser Leu Leu Trp Lys Arg Ala
        3112       13715             13720             13725
        3113 Asn Lys Thr Pro Ile Arg Met Arg Asp Phe Lys Val Thr Gly Leu Thr
E--> 3114       13730             13735             13740             1
        3115 Glu Gly Leu Glu Tyr Glu Phe Arg Val Met Ala Ile Asn Leu Ala Gly
E--> 3116 3745             13750             13755             13760
        3117 Val Gly Lys Pro Ser Leu Pro Ser Glu Pro Val Val Ala Leu Asp Pro
        3118             13765             13770             13775
        3119 Ile Asp Pro Pro Gly Lys Pro Glu Val Ile Asn Ile Thr Arg Asn Ser
        3120             13780             13785             13790
        3121 Val Thr Leu Ile Trp Thr Glu Pro Lys Tyr Asp Gly Gly His Lys Leu
        3122       13795             13800             13805
        3123 Thr Gly Tyr Ile Val Glu Lys Arg Asp Leu Pro Ser Lys Ser Trp Met
E--> 3124       13810             13815             13820             1
        3125 Lys Ala Asn His Val Asn Val Pro Glu Cys Ala Phe Thr Val Thr Asp
E--> 3126 3825             13830             13835             13840
        3127 Leu Val Glu Gly Gly Lys Tyr Glu Phe Arg Ile Arg Ala Lys Asn Thr
        3128             13845             13850             13855
        3129 Ala Gly Ala Ile Ser Ala Pro Ser Glu Ser Thr Glu Thr Ile Ile Cys
        3130             13860             13865             13870
        3131 Lys Asp Glu Tyr Glu Ala Pro Thr Ile Val Leu Asp Pro Thr Ile Lys
        3132       13875             13880             13885
        3133 Asp Gly Leu Thr Ile Lys Ala Gly Asp Thr Ile Val Leu Asn Ala Ile
E--> 3134       13890             13895             13900             1
        3135 Ser Ile Leu Gly Lys Pro Leu Pro Lys Ser Ser Trp Ser Lys Ala Gly
E--> 3136 3905             13910             13915             13920
        3137 Lys Asp Ile Arg Pro Ser Asp Ile Thr Gln Ile Thr Ser Thr Pro Thr
        3138             13925             13930             13935
        3139 Ser Ser Met Leu Thr Ile Lys Tyr Ala Thr Arg Lys Asp Ala Gly Glu
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        3140          13940            13945              13950
        3141 Tyr Thr Ile Thr Ala Thr Asn Pro Phe Gly Thr Lys Val Glu His Val
        3142        13955           13960              13965
        3143 Lys Val Thr Val Leu Asp Val Pro Gly Pro Pro Gly Pro Val Glu Ile
E--> 3144        13970            13975              13980          1
        3145 Ser Asn Val Ser Ala Glu Lys Ala Thr Leu Thr Trp Thr Pro Pro Leu
E--> 3146 3985          13990            13995            14000
        3147 Glu Asp Gly Gly Ser Pro Ile Lys Ser Tyr Ile Leu Glu Lys Arg Glu
        3148          14005            14010              14015
        3149 Thr Ser Arg Leu Leu Trp Thr Val Val Ser Glu Asp Ile Gln Ser Cys
        3150          14020            14025              14030
        3151 Arg His Val Ala Thr Lys Leu Ile Gln Gly Asn Glu Tyr Ile Phe Arg
        3152        14035            14040              14045
        3153 Val Ser Ala Val Asn His Tyr Gly Lys Gly Glu Pro Val Gln Ser Glu
E--> 3154        14050            14055              14060          1
        3155 Pro Val Lys Met Val Asp Arg Phe Gly Pro Gly Pro Pro Glu Lys
E--> 3156 4065          14070            14075            14080
        3157 Pro Glu Val Ser Asn Val Thr Lys Asn Thr Ala Thr Val Ser Trp Lys
        3158          14085            14090              14095
        3159 Arg Pro Val Asp Asp Gly Gly Ser Glu Ile Thr Gly Tyr His Val Glu
        3160          14100            14105              14110
        3161 Arg Arg Glu Lys Lys Ser Leu Arg Trp Val Arg Ala Ile Lys Thr Pro
        3162        14115            14120             14125
        3163 Val Ser Asp Leu Arg Cys Lys Val Thr Gly Leu Gln Glu Gly Ser Thr
E--> 3164        14130            14135              14140          1
        3165 Tyr Glu Phe Arg Val Ser Ala Glu Asn Arg Ala Gly Ile Gly Pro Pro
E--> 3166 4145          14150            14155            14160
        3167 Ser Glu Ala Ser Ser Val Leu Met Lys Asp Ala Ala Tyr Pro Pro
        3168          14165            14170              14175
        3169 Gly Pro Pro Ser Asn Pro His Val Thr Asp Thr Thr Lys Lys Ser Ala
        3170          14180            14185              14190
        3171 Ser Leu Ala Trp Gly Lys Pro His Tyr Asp Gly Gly Leu Glu Ile Thr
        3172        14195            14200              14205
        3173 Gly Tyr Val Val Glu His Gln Lys Val Gly Asp Glu Ala Trp Ile Lys
E--> 3174        14210            14215              14220          1
        3175 Asp Thr Thr Gly Thr Ala Leu Arg Ile Thr Gln Phe Val Val Pro Asp
E--> 3176 4225          14230            14235            14240
        3177 Leu Gln Thr Lys Glu Lys Tyr Asn Phe Arg Ile Ser Ala Ile Asn Asp
        3178          14245            14250              14255
        3179 Ala Gly Val Gly Glu Pro Ala Val Ile Pro Asp Val Glu Ile Val Glu
        3180        14260            14265              14270
        3181 Arg Glu Met Ala Pro Asp Phe Glu Leu Asp Ala Glu Leu Arg Arg Thr
        3182        14275            14280             14285
        3183 Leu Val Val Arg Ala Gly Leu Ser Ile Arg Ile Phe Val Pro Ile Lys
E--> 3184        14290            14295              14300          1
        3185 Gly Arg Pro Ala Pro Glu Val Thr Trp Thr Lys Asp Asn Ile Asn Leu
E--> 3186 4305          14310            14315            14320
        3187 Lys Asn Arg Ala Asn Ile Glu Asn Thr Glu Ser Phe Thr Leu Leu Ile
        3188          14325            14330              14335
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      3189 Ile Pro Glu Cys Asn Arg Tyr Asp Thr Gly Lys Phe Val Met Thr Ile
      3190          14340               14345               14350
      3191 Glu Asn Pro Ala Gly Lys Lys Ser Gly Phe Val Asn Val Arg Val Leu
      3192          14355               14360               14365
      3193 Asp Thr Pro Gly Pro Val Leu Asn Leu Arg Pro Thr Asp Ile Thr Lys
E--> 3194          14370               14375               14380             1
      3195 Asp Ser Val Thr Leu His Trp Asp Leu Pro Leu Ile Asp Gly Gly Ser
E--> 3196 4385          14390               14395               14400
      3197 Arg Ile Thr Asn Tyr Ile Val Glu Lys Arg Glu Ala Thr Arg Lys Ser
      3198          14405               14410               14415
      3199 Tyr Ser Thr Ala Thr Thr Lys Cys His Lys Cys Thr Tyr Lys Val Thr
      3200          14420               14425               14430
      3201 Gly Leu Ser Glu Gly Cys Glu Tyr Phe Phe Arg Val Met Ala Glu Asn
      3202          14435               14440               14445
      3203 Glu Tyr Gly Ile Gly Glu Pro Thr Glu Thr Thr Glu Pro Val Lys Ala
E--> 3204          14450               14455               14460             1
      3205 Ser Glu Ala Pro Ser Pro Pro Asp Ser Leu Asn Ile Met Asp Ile Thr
E--> 3206 4465          14470               14475               14480
      3207 Lys Ser Thr Val Ser Leu Ala Trp Pro Lys Pro Lys His Asp Gly Gly
      3208          14485               14490               14495
      3209 Ser Lys Ile Thr Gly Tyr Val Ile Glu Ala Gln Arg Lys Gly Ser Asp
      3210          14500               14505               14510
      3211 Gln Trp Thr His Ile Thr Thr Val Lys Gly Leu Glu Cys Val Val Arg
      3212          14515               14520               14525
      3213 Asn Leu Thr Glu Gly Glu Glu Tyr Thr Phe Gln Val Met Ala Val Asn
E--> 3214          14530               14535               14540             1
      3215 Ser Ala Gly Arg Ser Ala Pro Arg Glu Ser Arg Pro Val Ile Val Lys
E--> 3216 4545          14550               14555               14560
      3217 Glu Gln Thr Met Leu Pro Glu Leu Asp Leu Arg Gly Ile Tyr Gln Lys
      3218          14565               14570               14575
      3219 Leu Val Ile Ala Lys Ala Gly Asp Asn Ile Lys Val Glu Ile Pro Val
      3220          14580               14585               14590
      3221 Leu Gly Arg Pro Lys Pro Thr Val Thr Trp Lys Lys Gly Asp Gln Ile
      3222          14595               14600               14605
      3223 Leu Lys Gln Thr Gln Arg Val Asn Phe Glu Thr Thr Ala Thr Ser Thr
E--> 3224          14610               14615               14620             1
      3225 Ile Leu Asn Ile Asn Glu Cys Val Arg Ser Asp Ser Gly Pro Tyr Pro
E--> 3226 4625          14630               14635               14640
      3227 Leu Thr Ala Arg Asn Ile Val Gly Glu Val Gly Asp Val Ile Thr Ile
      3228          14645               14650               14655
      3229 Gln Val His Asp Ile Pro Gly Pro Pro Thr Gly Pro Ile Lys Phe Asp
      3230          14660               14665               14670
      3231 Glu Val Ser Ser Asp Phe Val Thr Phe Ser Trp Asp Pro Pro Glu Asn
      3232          14675               14680               14685
      3233 Asp Gly Gly Val Pro Ile Ser Asn Tyr Val Val Glu Met Arg Gln Thr
E--> 3234          14690               14695               14700             1
      3235 Asp Ser Thr Thr Trp Val Glu Leu Ala Thr Thr Val Ile Arg Thr Thr
E--> 3236 4705          14710               14715               14720
      3237 Tyr Lys Ala Thr Arg Leu Thr Thr Gly Leu Glu Tyr Gln Phe Arg Val
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         3238              14725              14730              14735
         3239 Lys Ala Gln Asn Arg Tyr Gly Val Gly Pro Gly Ile Thr Ser Ala Trp
         3240              14740              14745              14750
         3241 Ile Val Ala Asn Tyr Pro Phe Lys Val Pro Gly Pro Pro Gly Thr Pro
         3242      14755              14760              14765
         3243 Gln Val Thr Ala Val Thr Lys Asp Ser Met Thr Ile Ser Trp His Glu
E--> 3244      14770              14775              14780                  1
         3245 Pro Leu Ser Asp Gly Gly Ser Pro Ile Leu Gly Tyr His Val Glu Arg
E--> 3246 4785              14790              14795              14800
         3247 Lys Glu Arg Asn Gly Ile Leu Trp Gln Thr Val Ser Lys Ala Leu Val
         3248              14805              14810              14815
         3249 Pro Gly Asn Ile Phe Lys Ser Ser Gly Leu Thr Asp Gly Ile Ala Tyr
         3250              14820              14825              14830
         3251 Glu Phe Arg Val Ile Ala Glu Asn Met Ala Gly Lys Ser Lys Pro Ser
         3252      14835              14840              14845
         3253 Lys Pro Ser Glu Pro Met Leu Ala Leu Asp Pro Ile Asp Pro Pro Gly
E--> 3254      14850              14855              14860                  1
         3255 Lys Pro Val Pro Leu Asn Ile Thr Arg His Thr Val Thr Leu Lys Trp
E--> 3256 4865              14870              14875              14880
         3257 Ala Lys Pro Glu Tyr Thr Gly Gly Phe Lys Ile Thr Ser Tyr Ile Val
         3258              14885              14890              14895
         3259 Glu Lys Arg Asp Leu Pro Asn Gly Arg Trp Leu Lys Ala Asn Phe Ser
         3260              14900              14905              14910
         3261 Asn Ile Leu Glu Asn Glu Phe Thr Val Ser Gly Leu Thr Glu Asp Ala
         3262      14915              14920              14925
         3263 Ala Tyr Glu Phe Arg Val Ile Ala Lys Asn Ala Ala Gly Ala Ile Ser
E--> 3264      14930              14935              14940                  1
         3265 Pro Pro Ser Glu Pro Ser Asp Ala Ile Thr Cys Arg Asp Asp Val Glu
E--> 3266 4945              14950              14955              14960
         3267 Ala Pro Lys Ile Lys Val Asp Val Lys Phe Lys Asp Thr Val Ile Leu
         3268              14965              14970              14975
         3269 Lys Ala Gly Glu Ala Phe Arg Leu Glu Ala Asp Val Ser Gly Arg Pro
         3270              14980              14985              14990
         3271 Pro Pro Thr Met Glu Trp Ser Lys Asp Gly Lys Glu Leu Glu Gly Thr
         3272              14995              15000              15005
         3273 Ala Lys Leu Glu Ile Lys Ile Ala Asp Phe Ser Thr Asn Leu Val Asn
E--> 3274      15010              15015              15020                  1
         3275 Lys Asp Ser Thr Arg Arg Asp Ser Gly Ala Tyr Thr Leu Thr Ala Thr
E--> 3276 5025              15030              15035              15040
         3277 Asn Pro Gly Gly Phe Ala Lys His Ile Phe Asn Val Lys Val Leu Asp
         3278              15045              15050              15055
         3279 Arg Pro Gly Pro Pro Glu Gly Pro Leu Ala Val Thr Glu Val Thr Ser
         3280              15060              15065              15070
         3281 Glu Lys Cys Val Leu Ser Trp Phe Pro Pro Leu Asp Asp Gly Gly Ala
         3282      15075              15080              15085
         3283 Lys Ile Asp His Tyr Ile Val Gln Lys Arg Glu Thr Ser Arg Leu Ala
E--> 3284      15090              15095              15100                  1
         3285 Trp Thr Asn Val Ala Ser Glu Val Gln Val Thr Lys Leu Lys Val Thr
E--> 3286 5105              15110              15115              15120
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        3287 Lys Leu Leu Lys Gly Asn Glu Tyr Ile Phe Arg Val Met Ala Val Asn
        3288           15125               15130                15135
        3289 Lys Tyr Gly Val Gly Glu Pro Leu Glu Ser Glu Pro Val Leu Ala Val
        3290           15140               15145                15150
        3291 Asn Pro Tyr Gly Pro Pro Asp Pro Pro Lys Asn Pro Glu Val Thr Thr
        3292           15155               15160                15165
        3293 Ile Thr Lys Asp Ser Met Val Val Cys Trp Gly His Pro Asp Ser Asp
E--> 3294    15170               15175           .       15180               1
        3295 Gly Gly Ser Glu Ile Ile Asn Tyr Ile Val Glu Arg Arg Asp Lys Ala
E--> 3296 5185               15190               15195                15200
        3297 Gly Gln Arg Trp Ile Lys Cys Asn Lys Lys Thr Leu Thr Asp Leu Arg
        3298           15205               15210                15215
        3299 Tyr Lys Val Ser Gly Leu Thr Glu Gly His Glu Tyr Glu Phe Arg Ile
        3300           15220               15225                15230
        3301 Met Ala Glu Asn Ala Ala Gly Ile Ser Ala Pro Ser Pro Thr Ser Pro
        3302           15235               15240                15245
        3303 Phe Tyr Lys Ala Cys Asp Thr Val Phe Lys Pro Gly Pro Pro Gly Asn
E--> 3304    15250               15255               15260                1
        3305 Pro Arg Val Leu Asp Thr Ser Arg Ser Ser Ile Ser Ile Ala Trp Asn
E--> 3306 5265               15270               15275                15280
        3307 Lys Pro Ile Tyr Asp Gly Gly Ser Glu Ile Thr Gly Tyr Met Val Glu
        3308           15285               15290                15295
        3309 Ile Ala Leu Pro Glu Glu Asp Glu Trp Gln Ile Val Thr Pro Pro Ala
        3310           15300               15305                15310
        3311 Gly Leu Lys Ala Thr Ser Tyr Thr Ile Thr Gly Leu Thr Glu Asn Gln
        3312           15315               15320                15325
        3313 Glu Tyr Lys Ile Arg Ile Tyr Ala Met Asn Ser Glu Gly Leu Gly Glu
E--> 3314    15330               15335               15340                1
        3315 Pro Ala Leu Val Pro Gly Thr Pro Lys Ala Glu Asp Arg Met Leu Pro
E--> 3316 5345               15350               15355                15360
        3317 Pro Glu Ile Glu Leu Asp Ala Asp Leu Arg Lys Val Val Thr Ile Arg
        3318           15365               15370                15375
        3319 Ala Cys Cys Thr Leu Arg Leu Phe Val Pro Ile Lys Gly Arg Pro Asp
        3320           15380               15385                15390
        3321 Pro Glu Val Lys Trp Ala Arg Asp His Gly Glu Ser Leu Asp Lys Ala
        3322           15395               15400                15405
        3323 Ser Ile Glu Ser Ala Ser Ser Tyr Thr Leu Leu Ile Val Gly Asn Val
E--> 3324    15410               15415               15420                1
        3325 Asn Arg Phe Asp Ser Gly Lys Tyr Ile Leu Thr Val Glu Asn Ser Ser
E--> 3326 5425               15430               15435                15440
        3327 Gly Ser Lys Ser Ala Phe Val Asn Val Arg Val Leu Asp Thr Pro Gly
        3328           15445               15450            .      15455
        3329 Pro Pro Gln Asp Leu Lys Val Lys Glu Val Thr Lys Thr Ser Val Thr
        3330           15460               15465                15470
        3331 Leu Thr Trp Asp Pro Pro Leu Leu Asp Gly Gly Ser Lys Ile Lys Asn
        3332           15475               15480                15485
        3333 Tyr Ile Val Glu Lys Arg Glu Ser Thr Arg Lys Ala Tyr Ser Thr Val
E--> 3334    15490               15495               15500                1
        3335 Ala Thr Asn Cys His Lys Thr Ser Trp Lys Val Asp Gln Leu Gln Glu
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E--> 3336 5505            15510            15515            15520
     3337 Gly Cys Ser Tyr Tyr Phe Arg Val Leu Ala Glu Asn Glu Tyr Gly Ile
     3338            15525            15530            15535
     3339 Gly Leu Pro Ala Glu Thr Ala Glu Ser Val Lys Ala Ser Glu Arg Pro
     3340            15540            15545            15550
     3341 Leu Pro Pro Gly Lys Ile Thr Leu Met Asp Val Thr Arg Asn Ser Val
     3342   .        15555            15560            15565
     3343 Ser Leu Ser Trp Glu Lys Pro Glu His Asp Gly Gly Ser Arg Ile Leu
E--> 3344    15570            15575            15580             1
     3345 Gly Tyr Ile Val Glu Met Gln Thr Lys Gly Ser Asp Lys Trp Ala Thr
E--> 3346 5585            15590            15595            15600
     3347 Cys Ala Thr Val Lys Val Thr Glu Ala Thr Ile Thr Gly Leu Ile Gln
     3348            15605            15610            15615
     3349 Gly Glu Glu Tyr Ser Phe Arg Val Ser Ala Gln Asn Glu Lys Gly Ile
     3350            15620            15625            15630
     3351 Ser Asp Pro Arg Gln Leu Ser Val Pro Val Ile Ala Lys Asp Leu Val
     3352            15635            15640            15645
     3353 Ile Pro Pro Ala Phe Lys Leu Leu Phe Asn Thr Phe Thr Val Leu Ala
E--> 3354    15650            15655            15660             1
     3355 Gly Glu Asp Leu Lys Val Asp Val Pro Phe Ile Gly Arg Pro Thr Pro
E--> 3356 5665            15670            15675            15680
     3357 Ala Val Thr Trp His Lys Asp Asn Val Pro Leu Lys Gln Thr Thr Arg
     3358            15685            15690            15695
     3359 Val Asn Ala Glu Ser Thr Glu Asn Asn Ser Leu Leu Thr Ile Lys Asp
     3360            15700            15705            15710
     3361 Ala Cys Arg Glu Asp Val Gly His Tyr Val Val Lys Leu Thr Asn Ser
     3362            15715            15720            15725
     3363 Ala Gly Glu Ala Ile Glu Thr Leu Asn Val Ile Val Leu Asp Lys Pro
E--> 3364    15730            15735            15740             1
     3365 Gly Pro Pro Thr Gly Pro Val Lys Met Asp Glu Val Thr Ala Asp Ser
E--> 3366 5745            15750            15755            15760
     3367 Ile Thr Leu Ser Trp Gly Pro Pro Lys Tyr Asp Gly Gly Ser Ser Ile
     3368            15765            15770            15775
     3369 Asn Asn Tyr Ile Val Glu Lys Arg Asp Thr Ser Thr Thr Thr Trp Gln
     3370            15780            15785            15790
     3371 Ile Val Ser Ala Thr Val Ala Arg Thr Thr Ile Lys Ala Cys Arg Leu
     3372            15795            15800            15805
     3373 Lys Thr Gly Cys Glu Tyr Gln Phe Arg Ile Ala Ala Glu Asn Arg Tyr
E--> 3374    15810            15815            15820             1
     3375 Gly Lys Ser Thr Tyr Leu Asn Ser Glu Pro Thr Val Ala Gln Tyr Pro
E--> 3376 5825            15830            15835            15840
     3377 Phe Lys Val Pro Gly Pro Pro Gly Thr Pro Val Val Thr Leu Ser Ser
     3378            15845            15850            15855
     3379 Arg Asp Ser Met Glu Val Gln Trp Asn Glu Pro Ile Ser Asp Gly Gly
     3380            15860            15865            15870
     3381 Ser Arg Val Ile Gly Tyr His Leu Glu Arg Lys Glu Arg Asn Ser Ile
     3382            15875            15880            15885
     3383 Leu Trp Val Lys Leu Asn Lys Thr Pro Ile Pro Gln Thr Lys Phe Lys
E--> 3384    15890            15895            15900             1
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         3385 Thr Thr Gly Leu Glu Glu Gly Val Glu Tyr Glu Phe Arg Val Ser Ala
E--> 3386 5905              15910              15915              15920
         3387 Glu Asn Ile Val Gly Ile Gly Lys Pro Ser Lys Val Ser Glu Cys Tyr
     3388              15925              15930              15935
         3389 Val Ala Arg Asp Pro Cys Asp Pro Pro Gly Arg Pro Glu Ala Ile Ile
     3390              15940              15945              15950
         3391 Val Thr Arg Asn Ser Val Thr Leu Gln Trp Lys Lys Pro Thr Tyr Asp
     3392              15955              15960              15965
         3393 Gly Gly Ser Lys Ile Thr Gly Tyr Ile Val Glu Lys Lys Glu Leu Pro
E--> 3394     15970              15975              15980                  1
         3395 Glu Gly Arg Trp Met Lys Ala Ser Phe Thr Asn Ile Ile Asp Thr His
E--> 3396 5985              15990              15995              16000
         3397 Phe Glu Val Thr Gly Leu Val Glu Asp His Arg Tyr Glu Phe Arg Val
     3398              16005              16010              16015
         3399 Ile Ala Arg Asn Ala Ala Gly Val Phe Ser Glu Pro Ser Glu Ser Thr
     3400              16020              16025              16030
         3401 Gly Ala Ile Thr Ala Arg Asp Glu Val Asp Pro Pro Arg Ile Ser Met
     3402              16035              16040              16045
         3403 Asp Pro Lys Tyr Lys Asp Thr Ile Val Val His Ala Gly Glu Ser Phe
E--> 3404     16050              16055              16060                  1
         3405 Lys Val Asp Ala Asp Ile Tyr Gly Lys Pro Ile Pro Thr Ile Gln Trp
E--> 3406 6065              16070              16075              16080
         3407 Ile Lys Gly Asp Gln Glu Leu Ser Asn Thr Ala Arg Leu Glu Ile Lys
     3408              16085              16090              16095
         3409 Ser Thr Asp Phe Ala Thr Ser Leu Ser Val Lys Asp Ala Val Arg Val
     3410              16100              16105              16110
         3411 Asp Ser Gly Asn Tyr Ile Leu Lys Ala Lys Asn Val Ala Gly Glu Arg
     3412              16115              16120              16125
         3413 Ser Val Thr Val Asn Val Lys Val Leu Asp Arg Pro Gly Pro Pro Glu
E--> 3414     16130              16135              16140                  1
         3415 Gly Pro Val Val Ile Ser Gly Val Thr Ala Glu Lys Cys Thr Leu Ala
E--> 3416 6145              16150              16155              16160
         3417 Trp Lys Pro Pro Leu Gln Asp Gly Gly Ser Asp Ile Ile Asn Tyr Ile
     3418              16165              16170              16175
         3419 Val Glu Arg Arg Glu Thr Ser Arg Leu Val Trp Thr Val Val Asp Ala
     3420              16180              16185              16190
         3421 Asn Val Gln Thr Leu Ser Cys Lys Val Thr Lys Leu Leu Glu Gly Asn
     3422              16195              16200              16205
         3423 Glu Tyr Thr Phe Arg Ile Met Ala Val Asn Lys Tyr Gly Val Gly Glu
E--> 3424     16210              16215              16220                  1
         3425 Pro Leu Glu Ser Glu Pro Val Val Ala Lys Asn Pro Phe Val Val Pro
E--> 3426 6225              16230              16235              16240
         3427 Asp Ala Pro Lys Ala Pro Glu Val Thr Thr Val Thr Lys Asp Ser Met
     3428              16245              16250              16255
         3429 Ile Val Val Trp Glu Arg Pro Ala Ser Asp Gly Gly Ser Glu Ile Leu
     3430              16260              16265              16270
         3431 Gly Tyr Val Leu Glu Lys Arg Asp Lys Glu Gly Ile Arg Trp Thr Arg
     3432              16275              16280              16285
         3433 Cys His Lys Arg Leu Ile Gly Glu Leu Arg Leu Arg Val Thr Gly Leu
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```
E--> 3434    16290            16295            16300            1
     3435 Ile Glu Asn His Asp Tyr Glu Phe Arg Val Ser Ala Glu Asn Ala Ala
E--> 3436 6305            16310            16315            16320
     3437 Gly Leu Ser Glu Pro Ser Pro Pro Ser Ala Tyr Gln Lys Ala Cys Asp
     3438            16325            16330            16335
     3439 Pro Ile Tyr Lys Pro Gly Pro Pro Asn Asn Pro Lys Val Ile Asp Ile
     3440            16340            16345            16350
     3441 Thr Arg Ser Ser Val Phe Leu Ser Trp Ser Lys Pro Ile Tyr Asp Gly
     3442            16355            16360            16365
     3443 Gly Cys Glu Ile Gln Gly Tyr Ile Val Glu Lys Cys Asp Val Asn Val
E--> 3444    16370            16375            16380            1
     3445 Gly Glu Trp Thr Met Cys Thr Pro Pro Thr Gly Ile Asn Lys Thr Asn
E--> 3446 6385            16390            16395            16400
     3447 Ile Glu Val Glu Lys Leu Leu Glu Lys His Glu Tyr Asn Phe Arg Ile
     3448            16405            16410            16415
     3449 Cys Ala Ile Asn Lys Ala Gly Val Gly Glu His Ala Asp Val Pro Gly
     3450            16420            16425            16430
     3451 Pro Ile Ile Val Glu Glu Lys Leu Glu Ala Pro Asp Ile Asp Leu Asp
     3452            16435            16440            16445
     3453 Leu Glu Leu Arg Lys Ile Ile Asn Ile Arg Ala Gly Gly Ser Leu Arg
E--> 3454    16450            16455            16460            1
     3455 Leu Phe Val Pro Ile Lys Gly Arg Pro Thr Pro Glu Val Lys Trp Gly
E--> 3456 6465            16470            16475            16480
     3457 Lys Val Asp Gly Glu Ile Arg Asp Ala Ala Ile Ile Asp Val Thr Ser
     3458            16485            16490            16495
     3459 Ser Phe Thr Ser Leu Val Leu Asp Asn Val Asn Arg Tyr Asp Ser Gly
     3460            16500            16505            16510
     3461 Lys Tyr Thr Leu Thr Leu Glu Asn Ser Ser Gly Thr Lys Ser Ala Phe
     3462            16515            16520            16525
     3463 Val Thr Val Arg Val Leu Asp Thr Pro Ser Pro Pro Val Asn Leu Lys
E--> 3464    16530            16535            16540            1
     3465 Val Thr Glu Ile Thr Lys Asp Ser Val Ser Ile Thr Trp Glu Pro Pro
E--> 3466 6545            16550            16555            16560
     3467 Leu Leu Asp Gly Gly Ser Lys Ile Lys Asn Tyr Ile Val Glu Lys Arg
     3468            16565            16570            16575
     3469 Glu Ala Thr Arg Lys Ser Tyr Ala Ala Val Val Thr Asn Cys His Lys
     3470            16580            16585            16590
     3471 Asn Ser Trp Lys Ile Asp Gln Leu Gln Glu Gly Cys Ser Tyr Tyr Phe
     3472            16595            16600            16605
     3473 Arg Val Thr Ala Glu Asn Glu Tyr Gly Ile Gly Leu Pro Ala Gln Thr
E--> 3474    16610            16615            16620            1
     3475 Ala Asp Pro Ile Lys Val Ala Glu Val Pro Gln Pro Pro Gly Lys Ile
E--> 3476 6625            16630            16635            16640
     3477 Thr Val Asp Asp Val Thr Arg Asn Ser Val Ser Leu Ser Trp Thr Lys
     3478            16645            16650            16655
     3479 Pro Glu His Asp Gly Gly Ser Lys Ile Ile Gln Tyr Ile Val Glu Met
     3480            16660            16665            16670
     3481 Gln Ala Lys His Ser Glu Lys Trp Ser Glu Cys Ala Arg Val Lys Ser
     3482            16675            16680            16685
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      3483 Leu Gln Ala Val Ile Thr Asn Leu Thr Gln Gly Glu Glu Tyr Leu Phe
E--> 3484    16690            16695            16700               1
      3485 Arg Val Val Ala Val Asn Glu Lys Gly Arg Ser Asp Pro Arg Ser Leu
E--> 3486 6705            16710            16715            16720
      3487 Ala Val Pro Ile Val Ala Lys Asp Leu Val Ile Glu Pro Asp Val Lys
      3488            16725            16730            16735
      3489 Pro Ala Phe Ser Ser Tyr Ser Val Gln Val Gly Gln Asp Leu Lys Ile
      3490            16740            16745            16750
      3491 Glu Val Pro Ile Ser Gly Arg Pro Lys Pro Thr Ile Thr Trp Thr Lys
      3492    16755            16760            16765
      3493 Asp Gly Leu Pro Leu Lys Gln Thr Thr Arg Ile Asn Val Thr Asp Ser
E--> 3494    16770            16775            16780               1
      3495 Leu Asp Leu Thr Thr Leu Ser Ile Lys Glu Thr His Lys Asp Asp Gly
E--> 3496 6785            16790            16795            16800
      3497 Gly Gln Tyr Gly Ile Thr Val Ala Asn Val Val Gly Gln Lys Thr Ala
      3498            16805            16810            16815
      3499 Ser Ile Glu Ile Val Thr Leu Asp Lys Pro Asp Pro Pro Lys Gly Pro
      3500            16820            16825            16830
      3501 Val Lys Phe Asp Asp Val Ser Ala Glu Ser Ile Thr Leu Ser Trp Asn
      3502            16835            16840            16845
      3503 Pro Pro Leu Tyr Thr Gly Gly Cys Gln Ile Thr Asn Tyr Ile Val Gln
E--> 3504    16850            16855            16860               1
      3505 Lys Arg Asp Thr Thr Thr Thr Val Trp Asp Val Val Ser Ala Thr Val
E--> 3506 6865            16870            16875            16880
      3507 Ala Arg Thr Thr Leu Lys Val Thr Lys Leu Lys Thr Gly Thr Glu Tyr
      3508            16885            16890            16895
      3509 Gln Phe Arg Ile Phe Ala Glu Asn Arg Tyr Gly Gln Ser Phe Ala Leu
      3510            16900            16905            16910
      3511 Glu Ser Asp Pro Ile Val Ala Gln Tyr Pro Tyr Lys Glu Pro Gly Pro
      3512    16915            16920            16925
      3513 Pro Gly Thr Pro Phe Ala Thr Ala Ile Ser Lys Asp Ser Met Val Ile
E--> 3514    16930            16935            16940               1
      3515 Gln Trp His Glu Pro Val Asn Asn Gly Gly Ser Pro Val Ile Gly Tyr
E--> 3516 6945            16950            16955            16960
      3517 His Leu Glu Arg Lys Glu Arg Asn Ser Ile Leu Trp Thr Lys Val Asn
      3518            16965            16970            16975
      3519 Lys Thr Ile Ile His Asp Thr Gln Phe Lys Ala Gln Asn Leu Glu Glu
      3520            16980            16985            16990
      3521 Gly Ile Glu Tyr Glu Phe Arg Val Tyr Ala Glu Asn Ile Val Gly Val
      3522    16995            17000            17005
      3523 Gly Lys Ala Ser Lys Asn Ser Glu Cys Tyr Val Ala Arg Asp Pro Cys
E--> 3524    17010            17015            17020               1
      3525 Asp Pro Pro Gly Thr Pro Glu Pro Ile Met Val Lys Arg Asn Glu Ile
E--> 3526 7025            17030            17035            17040
      3527 Thr Leu Gln Trp Thr Lys Pro Val Tyr Asp Gly Gly Ser Met Ile Thr
      3528            17045            17050            17055
      3529 Gly Tyr Ile Val Glu Lys Arg Asp Leu Pro Asp Gly Arg Trp Met Lys
      3530            17060            17065            17070
      3531 Ala Ser Phe Thr Asn Val Ile Glu Thr Gln Phe Thr Val Ser Gly Leu
```

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              Input Set : A:\00786.381002.SEQLIST.TXT
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      3532         17075           17080           17085
      3533 Thr Glu Asp Gln Arg Tyr Glu Phe Arg Val Ile Ala Lys Asn Ala Ala
E--> 3534        17090           17095           17100               1
      3535 Gly Ala Ile Ser Lys Pro Ser Asp Ser Thr Gly Pro Ile Thr Ala Lys
E--> 3536 7105          17110           17115               17120
      3537 Asp Glu Val Glu Leu Pro Arg Ile Ser Met Asp Pro Lys Phe Arg Asp
      3538            17125           17130           17135
      3539 Thr Ile Val Val Asn Ala Gly Glu Thr Phe Arg Leu Glu Ala Asp Val
      3540         17140           17145           17150
      3541 His Gly Lys Pro Leu Pro Thr Ile Glu Trp Leu Arg Gly Asp Lys Glu
      3542         17155           17160           17165
      3543 Ile Glu Glu Ser Ala Arg Cys Glu Ile Lys Asn Thr Asp Phe Lys Ala
E--> 3544        17170           17175           17180               1
      3545 Leu Leu Ile Val Lys Asp Ala Ile Arg Ile Asp Gly Gly Gln Tyr Ile
E--> 3546 7185          17190           17195               17200
      3547 Leu Arg Ala Ser Asn Val Ala Gly Ser Lys Ser Phe Pro Val Asn Val
      3548            17205           17210           17215
      3549 Lys Val Leu Asp Arg Pro Gly Pro Pro Glu Gly Pro Val Gln Val Thr
      3550         17220           17225           17230
      3551 Gly Val Thr Ser Glu Lys Cys Ser Leu Thr Trp Ser Pro Pro Leu Gln
      3552         17235           17240           17245
      3553 Asp Gly Gly Ser Asp Ile Ser His Tyr Val Val Glu Lys Arg Glu Thr
E--> 3554        17250           17255           17260               1
      3555 Ser Arg Leu Ala Trp Thr Val Val Ala Ser Glu Val Val Thr Asn Ser
E--> 3556 7265          17270           17275               17280
      3557 Leu Lys Val Thr Lys Leu Leu Glu Gly Asn Glu Tyr Val Phe Arg Ile
      3558            17285           17290           17295
      3559 Met Ala Val Asn Lys Tyr Gly Val Gly Glu Pro Leu Glu Ser Ala Pro
      3560         17300           17305           17310
      3561 Val Leu Met Lys Asn Pro Phe Val Leu Pro Gly Pro Pro Lys Ser Leu
      3562            17315           17320           17325
      3563 Glu Val Thr Asn Ile Ala Lys Asp Ser Met Thr Val Cys Trp Asn Arg
E--> 3564        17330           17335           17340               1
      3565 Pro Asp Ser Asp Gly Gly Ser Glu Ile Ile Gly Tyr Ile Val Glu Lys
E--> 3566 7345          17350           17355               17360
      3567 Arg Asp Arg Ser Gly Ile Arg Trp Ile Lys Cys Asn Lys Arg Arg Ile
      3568            17365           17370           17375
      3569 Thr Asp Leu Arg Leu Arg Val Thr Gly Leu Thr Glu Asp His Glu Tyr
      3570         17380           17385           17390
      3571 Glu Phe Arg Val Ser Ala Glu Asn Ala Ala Gly Val Gly Glu Pro Ser
      3572         17395           17400           17405
      3573 Pro Ala Thr Val Tyr Tyr Lys Ala Cys Asp Pro Val Phe Lys Pro Gly
E--> 3574        17410           17415           17420               1
      3575 Pro Pro Thr Asn Ala His Ile Val Asp Thr Thr Lys Asn Ser Ile Thr
E--> 3576 7425          17430           17435               17440
      3577 Leu Ala Trp Gly Lys Pro Ile Tyr Asp Gly Gly Ser Glu Ile Leu Gly
      3578            17445           17450           17455
      3579 Tyr Val Val Glu Ile Cys Lys Ala Asp Glu Glu Trp Gln Ile Val
      3580         17460           17465           17470
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      3581 Thr Pro Gln Thr Gly Leu Arg Val Thr Arg Phe Glu Ile Ser Lys Leu
      3582       17475             17480                 17485
      3583 Thr Glu His Gln Glu Tyr Lys Ile Arg Val Cys Ala Leu Asn Lys Val
E--> 3584       17490             17495                 17500                 1
      3585 Gly Leu Gly Glu Ala Thr Ser Val Pro Gly Thr Val Lys Pro Glu Asp
E--> 3586 7505             17510             17515                 17520
      3587 Lys Leu Glu Ala Pro Glu Leu Asp Leu Asp Ser Glu Leu Arg Lys Gly
      3588                   17525             17530                 17535
      3589 Ile Val Val Arg Ala Gly Gly Ser Ala Arg Ile His Ile Pro Phe Lys
      3590             17540             17545                 17550
      3591 Gly Arg Pro Met Pro Glu Ile Thr Trp Ser Arg Glu Glu Gly Glu Phe
      3592       17555             17560                 17565
      3593 Thr Asp Lys Val Gln Ile Glu Lys Gly Val Asn Tyr Thr Gln Leu Ser
E--> 3594       17570             17575                 17580                 1
      3595 Ile Asp Asn Cys Asp Arg Asn Asp Ala Gly Lys Tyr Ile Leu Lys Leu
E--> 3596 7585             17590             17595                 17600
      3597 Glu Asn Ser Ser Gly Ser Lys Ser Ala Phe Val Thr Val Lys Val Leu
      3598             17605             17610                 17615
      3599 Asp Thr Pro Gly Pro Pro Gln Asn Leu Ala Val Lys Glu Val Arg Lys
      3600             17620             17625                 17630
      3601 Asp Ser Ala Phe Leu Val Trp Glu Pro Pro Ile Ile Asp Gly Gly Ala
      3602       17635             17640                 17645
      3603 Lys Val Lys Asn Tyr Val Ile Asp Lys Arg Glu Ser Thr Arg Lys Ala
E--> 3604       17650             17655                 17660                 1
      3605 Tyr Ala Asn Val Ser Ser Lys Cys Ser Lys Thr Ser Phe Lys Val Gln
E--> 3606 7665             17670             17675                 17680
      3607 Asn Leu Thr Glu Gly Ala Ile Tyr Tyr Phe Arg Val Met Ala Glu Asn
      3608             17685             17690                 17695
      3609 Glu Phe Gly Val Gly Val Pro Val Glu Thr Val Asp Ala Val Lys Ala
      3610             17700             17705                 17710
      3611 Ala Glu Pro Pro Ser Pro Pro Gly Lys Val Thr Leu Thr Asp Val Ser
      3612             17715             17720                 17725
      3613 Gln Thr Ser Ala Ser Leu Met Trp Glu Lys Pro Glu His Asp Gly Gly
E--> 3614       17730             17735                 17740                 1
      3615 Ser Arg Val Leu Gly Tyr Val Val Glu Met Gln Pro Lys Gly Thr Glu
E--> 3616 7745             17750             17755                 17760
      3617 Lys Trp Ser Ile Val Ala Glu Ser Lys Val Cys Asn Ala Val Val Thr
      3618             17765             17770                 17775
      3619 Gly Leu Ser Ser Gly Gln Glu Tyr Gln Phe Arg Val Lys Ala Tyr Asn
      3620             17780             17785                 17790
      3621 Glu Lys Gly Lys Ser Asp Pro Arg Val Leu Gly Val Pro Val Ile Ala
      3622       17795             17800                 17805
      3623 Lys Asp Leu Thr Ile Gln Pro Ser Leu Lys Leu Pro Phe Asn Thr Tyr
E--> 3624       17810             17815                 17820                 1
      3625 Ser Ile Gln Ala Gly Glu Asp Leu Lys Ile Glu Ile Pro Val Ile Gly
E--> 3626 7825             17830             17835                 17840
      3627 Arg Pro Arg Pro Asn Ile Ser Trp Val Lys Asp Gly Glu Pro Leu Lys
      3628             17845             17850                 17855
      3629 Gln Thr Thr Arg Val Asn Val Glu Glu Thr Ala Thr Ser Thr Val Leu
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        3630         17860              17865             17870
        3631 His Ile Lys Glu Gly Asn Lys Asp Asp Phe Gly Lys Tyr Thr Val Thr
        3632      17875              17880             17885
        3633 Ala Thr Asn Ser Ala Gly Thr Ala Thr Glu Asn Leu Ser Val Ile Val
E--> 3634    17890              17895             17900                 1
        3635 Leu Glu Lys Pro Gly Pro Pro Val Gly Pro Val Arg Phe Asp Glu Val
E--> 3636 7905             17910           · 17915             17920
        3637 Ser Ala Asp Phe Val Val Ile Ser Trp Glu Pro Pro Ala Tyr Thr Gly
        3638              17925              17930             17935
        3639 Gly Cys Gln Ile Ser Asn Tyr Ile Val Glu Lys Arg Asp Thr Thr Thr
        3640      17940              17945             17950
        3641 Thr Thr Trp His Met Val Ser Ala Thr Val Ala Arg Thr Thr Ile Lys
        3642      17955              17960             17965
        3643 Ile Thr Lys Leu Lys Thr Gly Thr Glu Tyr Gln Phe Arg Ile Phe Ala
E--> 3644    17970              17975             17980                 1
        3645 Glu Asn Arg Tyr Gly Lys Ser Ala Pro Leu Asp Ser Lys Ala Val Ile
E--> 3646 7985             17990              17995             18000
        3647 Val Gln Tyr Pro Phe Lys Glu Pro Gly Pro Pro Gly Thr Pro Phe Val
        3648              18005              18010             18015
        3649 Thr Ser Ile Ser Lys Asp Gln Met Leu Val Gln Trp His Glu Pro Val
        3650         18020              18025             18030
        3651 Asn Asp Gly Gly Thr Lys Ile Ile Gly Tyr His Leu Glu Gln Lys Glu
        3652      18035              18040             18045
        3653 Lys Asn Ser Ile Leu Trp Val Lys Leu Asn Lys Thr Pro Ile Gln Asp
E--> 3654    18050              18055             18060                 1
        3655 Thr Lys Phe Lys Thr Thr Gly Leu Asp Glu Gly Leu Glu Tyr Glu Phe
E--> 3656 8065             18070              18075             18080
        3657 Lys Val Ser Ala Glu Asn Ile Val Gly Ile Gly Lys Pro Ser Lys Val
        3658              18085              18090             18095
        3659 Ser Glu Cys Phe Val Ala Arg Asp Pro Cys Asp Pro Pro Gly Arg Pro
        3660      18100              18105             18110
        3661 Glu Ala Ile Val Ile Thr Arg Asn Asn Val Thr Leu Lys Trp Lys Lys
        3662      18115              18120             18125
        3663 Pro Ala Tyr Asp Gly Gly Ser Lys Ile Thr Gly Tyr Ile Val Glu Lys
E--> 3664    18130              18135             18140                 1
        3665 Lys Asp Leu Pro Asp Gly Arg Trp Met Lys Ala Ser Phe Thr Asn Val
E--> 3666 8145             18150              18155             18160
        3667 Leu Glu Thr Glu Phe Thr Val Ser Gly Leu Val Glu Asp Gln Arg Tyr
        3668              18165              18170             18175
        3669 Glu Phe Arg Val Ile Ala Arg Asn Ala Ala Gly Asn Phe Ser Glu Pro
        3670      18180              18185             18190
        3671 Ser Asp Ser Ser Gly Ala Ile Thr Ala Arg Asp Glu Ile Asp Ala Pro
        3672      18195              18200             18205
        3673 Asn Ala Ser Leu Asp Pro Lys Tyr Lys Asp Val Ile Val Val His Ala
E--> 3674    18210              18215             18220                 1
        3675 Gly Glu Thr Phe Val Leu Glu Ala Asp Ile Arg Gly Lys Pro Ile Pro
E--> 3676 8225             18230              18235             18240
        3677 Asp Val Val Trp Ser Lys Asp Gly Lys Glu Leu Glu Glu Thr Ala Ala
        3678              18245              18250             18255
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      3679 Arg Met Glu Ile Lys Ser Thr Ile Gln Lys Thr Thr Leu Val Val Lys
      3680          18260              18265              18270
      3681 Asp Cys Ile Arg Thr Asp Gly Gly Gln Tyr Ile Leu Lys Leu Ser Asn
      3682          18275              18280              18285
      3683 Val Gly Gly Thr Lys Ser Ile Pro Ile Thr Val Lys Val Leu Asp Arg
E--> 3684     18290              18295              18300                 1
      3685 Pro Gly Ser Pro Glu Gly Pro Leu Lys Val Thr Gly Val Thr Ala Glu
E--> 3686 8305              18310              18315              18320
      3687 Lys Cys Tyr Leu Ala Trp Asn Pro Pro Leu Gln Asp Gly Gly Ala Asn
      3688          18325              18330              18335
      3689 Ile Ser His Tyr Ile Ile Glu Lys Arg Glu Thr Ser Arg Leu Ser Trp
      3690          18340              18345              18350
      3691 Thr Gln Val Ser Thr Glu Val Gln Ala Leu Asn Tyr Lys Val Thr Lys
      3692          18355              18360              18365
      3693 Leu Leu Pro Gly Asn Glu Tyr Ile Phe Arg Val Met Ala Val Asn Lys
E--> 3694     18370              18375              18380                 1
      3695 Tyr Gly Ile Gly Glu Pro Leu Glu Ser Gly Pro Val Thr Ala Cys Asn
E--> 3696 8385              18390              18395              18400
      3697 Pro Tyr Lys Pro Pro Gly Pro Pro Ser Thr Pro Glu Val Ser Ala Ile
      3698          18405              18410              18415
      3699 Thr Lys Asp Ser Met Val Val Thr Arg Pro Val Asp Asp Gly
      3700          18420              18425              18430
      3701 Gly Thr Glu Ile Glu Gly Tyr Ile Leu Glu Lys Arg Asp Lys Glu Gly
      3702     18435              18440              18445
      3703 Val Arg Trp Thr Lys Cys Asn Lys Lys Thr Leu Thr Asp Leu Arg Leu
E--> 3704     18450              18455              18460                 1
      3705 Arg Val Thr Gly Leu Thr Glu Gly His Ser Tyr Glu Phe Arg Val Ala
E--> 3706 8465              18470              18475              18480
      3707 Ala Glu Asn Ala Ala Gly Val Gly Glu Pro Ser Glu Pro Ser Val Phe
      3708          18485              18490              18495
      3709 Tyr Arg Ala Cys Asp Ala Leu Tyr Pro Pro Gly Pro Pro Ser Asn Pro
      3710          18500              18505              18510
      3711 Lys Val Thr Asp Thr Ser Arg Ser Ser Val Ser Leu Ala Trp Ser Lys
      3712          18515              18520              18525
      3713 Pro Ile Tyr Asp Gly Gly Ala Pro Val Lys Gly Tyr Val Val Glu Val
E--> 3714     18530              18535              18540                 1
      3715 Lys Glu Ala Ala Ala Asp Glu Trp Thr Thr Cys Thr Pro Pro Thr Gly
E--> 3716 8545              18550              18555              18560
      3717 Leu Gln Gly Lys Gln Phe Thr Val Thr Lys Leu Lys Glu Asn Thr Glu
      3718          18565              18570              18575
      3719 Tyr Asn Phe Arg Ile Cys Ala Ile Asn Ser Glu Gly Val Gly Glu Pro
      3720          18580              18585              18590
      3721 Ala Thr Leu Pro Gly Ser Val Val Ala Gln Glu Arg Ile Glu Pro Pro
      3722     18595              18600              18605
      3723 Glu Ile Glu Leu Asp Ala Asp Leu Arg Lys Val Val Val Leu Arg Ala
E--> 3724     18610              18615              18620                 1
      3725 Ser Ala Thr Leu Arg Leu Phe Val Thr Ile Lys Gly Arg Pro Glu Pro
E--> 3726 8625              18630              18635              18640
      3727 Glu Val Lys Trp Glu Lys Ala Glu Gly Ile Leu Thr Asp Arg Ala Gln
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      3728            18645            18650            18655
      3729 Ile Glu Val Thr Ser Ser Phe Thr Met Leu Val Ile Asp Asn Val Thr
      3730       18660            18665            18670
      3731 Arg Phe Asp Ser Gly Arg Tyr Asn Leu Thr Leu Glu Asn Asn Ser Gly
      3732     18675            18680            18685
      3733 Ser Lys Thr Ala Phe Val Asn Val Arg Val Leu Asp Ser Pro Ser Ala
E--> 3734     18690            18695           18700                        1
      3735 Pro Val Asn Leu Thr Ile Arg Glu Val Lys Lys Asp Ser Val Thr Leu
E--> 3736 8705            18710            18715            18720
      3737 Ser Trp Glu Pro Pro Leu Ile Asp Gly Gly Ala Lys Ile Thr Asn Tyr
      3738       18725            18730            18735
      3739 Ile Val Glu Lys Arg Glu Thr Thr Arg Lys Ala Tyr Ala Thr Ile Thr
      3740       18740            18745            18750
      3741 Asn Asn Cys Thr Lys Thr Thr Phe Arg Ile Glu Asn Leu Gln Glu Gly
      3742       18755            18760            18765
      3743 Cys Ser Tyr Tyr Phe Arg Val Leu Ala Ser Asn Glu Tyr Gly Ile Gly
E--> 3744     18770            18775            18780                        1
      3745 Leu Pro Ala Glu Thr Thr Glu Pro Val Lys Val Ser Glu Pro Pro Leu
E--> 3746 8785            18790            18795            18800
      3747 Pro Pro Gly Arg Val Thr Leu Val Asp Val Thr Arg Asn Thr Ala Thr
      3748       18805            18810            18815
      3749 Ile Lys Trp Glu Lys Pro Glu Ser Asp Gly Gly Ser Lys Ile Thr Gly
      3750       18820            18825            18830
      3751 Tyr Val Val Glu Met Gln Thr Lys Gly Ser Glu Lys Trp Ser Thr Cys
      3752       18835            18840            18845
      3753 Thr Gln Val Lys Thr Leu Glu Ala Thr Ile Ser Gly Leu Thr Ala Gly
E--> 3754     18850            18855            18860                        1
      3755 Glu Glu Tyr Val Phe Arg Val Ala Ala Val Asn Glu Lys Gly Arg Ser
E--> 3756 8865            18870            18875            18880
      3757 Asp Pro Arg Gln Leu Gly Val Pro Val Ile Ala Arg Asp Ile Glu Ile
      3758       18885            18890            18895
      3759 Lys Pro Ser Val Glu Leu Pro Phe His Thr Phe Asn Val Lys Ala Arg
      3760       18900            18905            18910
      3761 Glu Gln Leu Lys Ile Asp Val Pro Phe Lys Gly Arg Pro Gln Ala Thr
      3762       18915            18920            18925
      3763 Val Asn Trp Arg Lys Asp Gly Gln Thr Leu Lys Glu Thr Thr Arg Val
E--> 3764     18930            18935            18940                        1
      3765 Asn Val Ser Ser Ser Lys Thr Val Thr Ser Leu Ser Ile Lys Glu Ala
E--> 3766 8945            18950            18955            18960
      3767 Ser Lys Glu Asp Val Gly Thr Tyr Glu Leu Cys Val Ser Asn Ser Ala
      3768       18965            18970            18975
      3769 Gly Ser Ile Thr Val Pro Ile Thr Ile Ile Val Leu Asp Arg Pro Gly
      3770       18980            18985            18990
      3771 Pro Pro Gly Pro Ile Arg Ile Asp Glu Val Ser Cys Asp Ser Ile Thr
      3772     18995            19000            19005
      3773 Ile Ser Trp Asn Pro Pro Glu Tyr Asp Gly Gly Cys Gln Ile Ser Asn
E--> 3774     19010            19015            19020                        1
      3775 Tyr Ile Val Glu Lys Lys Glu Thr Thr Ser Thr Thr Trp His Ile Val
E--> 3776 9025            19030            19035            19040
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        3777 Ser Gln Ala Val Ala Arg Thr Ser Ile Lys Ile Val Arg Leu Thr Thr
        3778          19045              19050              19055
        3779 Gly Ser Glu Tyr Gln Phe Arg Val Cys Ala Glu Asn Arg Tyr Gly Lys
        3780          19060              19065              19070
        3781 Ser Ser Tyr Ser Glu Ser Ser Ala Val Val Ala Glu Tyr Pro Phe Ser
        3782          19075              19080              19085
        3783 Pro Pro Gly Pro Pro Gly Thr Pro Lys Val Val His Ala Thr Lys Ser
E--> 3784      19090              19095              19100                   1
        3785 Thr Met Leu Val Thr Trp Gln Val Pro Val Asn Asp Gly Gly Ser Arg
E--> 3786 9105              19110              19115                     19120
        3787 Val Ile Gly Tyr His Leu Glu Tyr Lys Glu Arg Ser Ser Ile Leu Trp
        3788          19125              19130              19135
        3789 Ser Lys Ala Asn Lys Ile Leu Ile Ala Asp Thr Gln Val Lys Val Ser
        3790          19140              19145              19150
        3791 Gly Leu Asp Glu Gly Leu Met Tyr Glu Tyr Arg Val Tyr Ala Glu Asn
        3792          19155              19160              19165
        3793 Ile Ala Gly Ile Gly Lys Cys Ser Lys Ser Cys Glu Pro Val Pro Ala
E--> 3794      19170              19175              19180                   1
        3795 Arg Asp Pro Cys Asp Pro Pro Gly Gln Pro Glu Val Thr Asn Ile Thr
E--> 3796 9185              19190              19195                     19200
        3797 Arg Lys Ser Val Ser Leu Lys Trp Ser Lys Pro His Tyr Asp Gly Gly
        3798          19205              19210              19215
        3799 Ala Lys Ile Thr Gly Tyr Ile Val Glu Arg Arg Glu Leu Pro Asp Gly
        3800          19220              19225              19230
        3801 Arg Trp Leu Lys Cys Asn Tyr Thr Asn Ile Gln Glu Thr Tyr Phe Glu
        3802          19235              19240              19245
        3803 Val Thr Glu Leu Thr Glu Asp Gln Arg Tyr Glu Phe Arg Val Phe Ala
E--> 3804      19250              19255              19260                   1
        3805 Arg Asn Ala Ala Asp Ser Val Ser Glu Pro Ser Glu Ser Thr Gly Pro
E--> 3806 9265              19270              19275                     19280
        3807 Ile Ile Val Lys Asp Asp Val Glu Pro Pro Arg Val Met Met Asp Val
        3808          19285              19290              19295
        3809 Lys Phe Arg Asp Val Ile Val Val Lys Ala Gly Glu Val Leu Lys Ile
        3810          19300              19305              19310
        3811 Asn Ala Asp Ile Ala Gly Arg Pro Leu Pro Val Ile Ser Trp Ala Lys
        3812          19315              19320              19325
        3813 Asp Gly Ile Glu Ile Glu Glu Arg Ala Arg Thr Glu Ile Ile Ser Thr
E--> 3814      19330              19335              19340                   1
        3815 Asp Asn His Thr Leu Leu Thr Val Lys Asp Cys Ile Arg Arg Asp Thr
E--> 3816 9345              19350              19355                     19360
        3817 Gly Gln Tyr Val Leu Thr Leu Lys Asn Val Ala Gly Thr Arg Ser Val
        3818          19365              19370              19375
        3819 Ala Val Asn Cys Lys Val Leu Asp Lys Pro Gly Pro Pro Ala Gly Pro
        3820          19380              19385              19390
        3821 Leu Glu Ile Asn Gly Leu Thr Ala Glu Lys Cys Ser Leu Ser Trp Gly
        3822          19395              19400              19405
        3823 Arg Pro Gln Glu Asp Gly Gly Ala Asp Ile Asp Tyr Tyr His Arg Lys
E--> 3824      19410              19415              19420                   1
        3825 Lys Arg Glu Thr Ser His Leu Ala Trp Thr Ile Cys Glu Gly Glu Leu
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E--> 3826 9425               19430               19435               19440
     3827 Gln Met Thr Ser Cys Lys Val Thr Lys Leu Leu Lys Gly Asn Glu Tyr
     3828               19445               19450               19455
     3829 Ile Phe Arg Val Thr Gly Val Asn Lys Tyr Gly Val Gly Pro Leu
     3830          19460               19465               19470
     3831 Glu Ser Val Ala Ile Lys Ala Leu Asp Pro Phe Thr Val Pro Ser Pro
     3832          19475               19480               19485
     3833 Pro Thr Ser Leu Glu Ile Thr Ser Val Thr Lys Glu Ser Met Thr Leu
E--> 3834     19490               19495               19500               1
     3835 Cys Trp Ser Arg Pro Glu Ser Asp Gly Gly Ser Glu Ile Ser Gly Tyr
E--> 3836 9505               19510               19515               19520
     3837 Ile Ile Glu Arg Arg Glu Lys Asn Ser Leu Arg Trp Val Arg Val Asn
     3838               19525               19530               19535
     3839 Lys Lys Pro Val Tyr Asp Leu Arg Val Lys Ser Thr Gly Leu Arg Glu
     3840          19540               19545               19550
     3841 Gly Cys Glu Tyr Glu Tyr Arg Val Tyr Ala Glu Asn Ala Ala Gly Leu
     3842          19555               19560               19565
     3843 Ser Leu Pro Ser Glu Thr Ser Pro Leu Ile Arg Ala Glu Asp Pro Val
E--> 3844     19570               19575               19580               1
     3845 Phe Leu Pro Ser Pro Pro Ser Lys Pro Lys Ile Val Asp Ser Gly Lys
E--> 3846 9585               19590               19595               19600
     3847 Thr Thr Ile Thr Ile Ala Trp Val Lys Pro Leu Phe Asp Gly Gly Ala
     3848               19605               19610               19615
     3849 Pro Ile Thr Gly Tyr Thr Val Glu Tyr Lys Lys Ser Asp Asp Thr Asp
     3850          19620               19625               19630
     3851 Trp Lys Thr Ser Ile Gln Ser Leu Arg Gly Thr Glu Tyr Thr Ile Ser
     3852          19635               19640               19645
     3853 Gly Leu Thr Thr Gly Ala Glu Tyr Val Phe Arg Val Lys Ser Val Asn
E--> 3854     19650               19655               19660               1
     3855 Lys Val Gly Ala Ser Asp Pro Ser Asp Ser Ser Asp Pro Gln Ile Ala
E--> 3856 9665               19670               19675               19680
     3857 Lys Glu Arg Glu Glu Glu Pro Leu Phe Asp Ile Asp Ser Glu Met Arg
     3858               19685               19690               19695
     3859 Lys Thr Leu Ile Val Lys Ala Gly Ala Ser Phe Thr Met Thr Val Pro
     3860          19700               19705               19710
     3861 Phe Arg Gly Arg Pro Val Pro Asn Val Leu Trp Ser Lys Pro Asp Thr
     3862          19715               19720               19725
     3863 Asp Leu Arg Thr Arg Ala Tyr Val Asp Thr Thr Asp Ser Arg Thr Ser
E--> 3864     19730               19735               19740               1
     3865 Leu Thr Ile Glu Asn Ala Asn Arg Asn Asp Ser Gly Lys Tyr Thr Leu
E--> 3866 9745               19750               19755               19760
     3867 Thr Ile Gln Asn Val Leu Ser Ala Ala Ser Leu Thr Leu Val Val Lys
     3868               19765               19770               19775
     3869 Val Leu Asp Thr Pro Gly Pro Pro Thr Asn Ile Thr Val Gln Asp Val
     3870          19780               19785               19790
     3871 Thr Lys Glu Ser Ala Val Leu Ser Trp Asp Val Pro Glu Asn Asp Gly
     3872          19795               19800               19805
     3873 Gly Ala Pro Val Lys Asn Tyr His Ile Glu Lys Arg Glu Ala Ser Lys
E--> 3874     19810               19815               19820               1
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      3875 Lys Ala Trp Val Ser Val Thr Asn Asn Cys Asn Arg Leu Ser Tyr Lys
E--> 3876 9825          19830          19835          19840
      3877 Val Thr Asn Leu Gln Glu Gly Ala Ile Tyr Tyr Phe Arg Val Ser Gly
      3878          19845          19850          19855
      3879 Glu Asn Glu Phe Gly Val Gly Ile Pro Ala Glu Thr Lys Glu Gly Val
      3880          19860          19865          19870
      3881 Lys Ile Thr Glu Lys Pro Ser Pro Pro Glu Lys Leu Gly Val Thr Ser
      3882          19875          19880          19885
      3883 Ile Ser Lys Asp Ser Val Ser Leu Thr Trp Leu Lys Pro Glu His Asp
E--> 3884   19890          19895          19900          1
      3885 Gly Gly Ser Arg Ile Val His Tyr Val Val Glu Ala Leu Glu Lys Gly
E--> 3886 9905          19910          19915          19920
      3887 Gln Lys Asn Trp Val Lys Cys Ala Val Ala Lys Ser Thr His His Val
      3888          19925          19930          19935
      3889 Val Ser Gly Leu Arg Glu Asn Ser Glu Tyr Phe Phe Arg Val Phe Ala
      3890          19940          19945          19950
      3891 Glu Asn Gln Ala Gly Leu Ser Asp Pro Arg Glu Leu Leu Leu Pro Val
      3892          19955          19960          19965
      3893 Leu Ile Lys Glu Gln Leu Glu Pro Pro Glu Ile Asp Met Lys Asn Phe
E--> 3894   19970          19975          19980          1
      3895 Pro Ser His Thr Val Tyr Val Arg Ala Gly Ser Asn Leu Lys Val Asp
E--> 3896 9985          19990          19995          20000
      3897 Ile Pro Ile Ser Gly Lys Pro Leu Pro Lys Val Thr Leu Ser Arg Asp
      3898          20005          20010          20015
      3899 Gly Val Pro Leu Lys Ala Thr Met Arg Phe Asn Thr Glu Ile Thr Ala
      3900          20020          20025          20030
      3901 Glu Asn Leu Thr Ile Asn Leu Lys Glu Ser Val Thr Ala Asp Ala Gly
      3902          20035          20040          20045
      3903 Arg Tyr Glu Ile Thr Ala Ala Asn Ser Ser Gly Thr Thr Lys Ala Phe
E--> 3904   20050          20055          20060          2
      3905 Ile Asn Ile Val Val Leu Asp Arg Pro Gly Pro Pro Thr Gly Pro Val
E--> 3906 0065          20070          20075          20080
      3907 Val Ile Ser Asp Ile Thr Glu Glu Ser Val Thr Leu Lys Trp Glu Pro
      3908          20085          20090          20095
      3909 Pro Lys Tyr Asp Gly Gly Ser Gln Val Thr Asn Tyr Ile Leu Leu Lys
      3910          20100          20105          20110
      3911 Arg Glu Thr Ser Thr Ala Val Trp Thr Glu Val Ser Ala Thr Val Ala
      3912          20115          20120          20125
      3913 Arg Thr Met Met Lys Val Met Lys Leu Thr Thr Gly Glu Glu Tyr Gln
E--> 3914   20130          20135          20140          2
      3915 Phe Arg Ile Lys Ala Glu Asn Arg Phe Gly Ile Ser Asp His Ile Asp
E--> 3916 0145          20150          20155          20160
      3917 Ser Ala Cys Val Thr Val Lys Leu Pro Tyr Thr Thr Pro Gly Pro Pro
      3918          20165          20170          20175
      3919 Ser Thr Pro Trp Val Thr Asn Val Thr Arg Glu Ser Ile Thr Val Gly
      3920          20180          20185          20190
      3921 Trp His Glu Pro Val Ser Asn Gly Gly Ser Ala Val Val Gly Tyr His
      3922          20195          20200          20205
      3923 Leu Glu Met Lys Asp Arg Asn Ser Ile Leu Trp Gln Lys Ala Asn Lys
```

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RAW SEQUENCE LISTING              DATE: 01/29/2001
PATENT APPLICATION:  US/09/759,508   TIME: 13:24:54

Input Set : A:\00786.381002.SEQLIST.TXT
Output Set: N:\CRF3\01292001\I759508.raw

E--> 3924     20210            20215            20220           2
     3925 Leu Val Ile Arg Thr Thr His Phe Lys Val Thr Thr Ile Ser Ala Gly
E--> 3926 0225            20230            20235           20240
     3927 Leu Ile Tyr Glu Phe Arg Val Tyr Ala Glu Asn Ala Ala Gly Val Gly
     3928          20245            20250           20255
     3929 Lys Pro Ser His Pro Ser Glu Pro Val Leu Ala Ile Asp Ala Cys Glu
     3930          20260            20265           20270
     3931 Pro Pro Arg Asn Val Arg Ile Thr Asp Ile Ser Lys Asn Ser Val Ser
     3932          20275            20280           20285
     3933 Leu Ser Trp Gln Gln Pro Ala Phe Asp Gly Gly Ser Lys Ile Thr Gly
E--> 3934     20290            20295            20300           2
     3935 Tyr Ile Val Glu Arg Arg Asp Leu Pro Asp Gly Arg Trp Thr Lys Ala
E--> 3936 0305            20310            20315           20320
     3937 Ser Phe Thr Asn Val Thr Gln Thr Gln Phe Thr Ile Ser Gly Leu Thr
     3938          20325            20330           20335
     3939 Gln Asn Ser Gln Tyr Glu Phe Arg Val Phe Ala Arg Asn Ala Val Gly
     3940          20340            20345           20350
     3941 Ser Ile Ser Asn Pro Ser Glu Val Val Gly Pro Ile Thr Cys Ile Asp
     3942          20355            20360           20365
     3943 Ser Tyr Gly Gly Pro Val Ile Asp Leu Pro Leu Glu Tyr Thr Glu Val
E--> 3944     20370            20375            20380           2
     3945 Val Lys Tyr Arg Ala Gly Thr Ser Val Lys Leu Arg Ala Gly Ile Ser
E--> 3946 0385            20390            20395           20400
     3947 Gly Lys Pro Ala Pro Thr Ile Glu Trp Tyr Lys Asp Asp Lys Glu Leu
     3948          20405            20410           20415
     3949 Gln Thr Asn Ala Leu Val Cys Val Glu Asn Thr Thr Asp Leu Ala Ser
     3950          20420            20425           20430
     3951 Ile Leu Ile Lys Asp Ala Asp Arg Leu Asn Ser Gly Cys Tyr Glu Leu
     3952          20435            20440           20445
     3953 Lys Leu Arg Asn Ala Met Ala Ser Ala Ser Ala Thr Ile Arg Val Gln
E--> 3954     20450            20455            20460           2
     3955 Ile Leu Asp Lys Pro Gly Pro Pro Gly Gly Pro Ile Glu Phe Lys Thr
E--> 3956 0465            20470            20475           20480
     3957 Val Thr Ala Glu Lys Ile Thr Leu Leu Trp Arg Pro Pro Ala Asp Asp
     3958          20485            20490           20495
     3959 Gly Gly Ala Lys Ile Thr His Tyr Ile Val Glu Lys Arg Glu Thr Ser
     3960          20500            20505           20510
     3961 Arg Val Val Trp Ser Met Val Ser Glu His Leu Glu Glu Cys Ile Ile
     3962          20515            20520           20525
     3963 Thr Thr Thr Lys Ile Ile Lys Gly Asn Glu Tyr Ile Phe Arg Val Arg
E--> 3964     20530            20535            20540           2
     3965 Ala Val Asn Lys Tyr Gly Ile Gly Glu Pro Leu Glu Ser Asp Ser Val
E--> 3966 0545            20550            20555           20560
     3967 Val Ala Lys Asn Ala Phe Val Thr Pro Gly Pro Pro Gly Ile Pro Glu
     3968          20565            20570           20575
     3969 Val Thr Lys Ile Thr Lys Asn Ser Met Thr Val Val Trp Ser Arg Pro
     3970          20580            20585           20590
     3971 Ile Ala Asp Gly Gly Ser Asp Ile Ser Gly Tyr Phe Leu Glu Lys Arg
     3972          20595            20600           20605
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      3973 Asp Lys Lys Ser Leu Gly Trp Phe Lys Val Leu Lys Glu Thr Ile Arg
E--> 3974     20610            20615            20620                2
      3975 Asp Thr Arg Gln Lys Val Thr Gly Leu Thr Glu Asn Ser Asp Tyr Gln
E--> 3976 0625            20630            20635            20640
      3977 Tyr Arg Val Cys Ala Val Asn Ala Ala Gly Gln Gly Pro Phe Ser Glu
      3978            20645            20650            20655
      3979 Pro Ser Glu Phe Tyr Lys Ala Ala Asp Pro Ile Asp Pro Pro Gly Pro
      3980            20660            20665            20670
      3981 Pro Ala Lys Ile Arg Ile Ala Asp Ser Thr Lys Ser Ser Ile Thr Leu
      3982            20675            20680            20685
      3983 Gly Trp Ser Lys Pro Val Tyr Asp Gly Gly Ser Ala Val Thr Gly Tyr
E--> 3984            20690            20695            20700                2
      3985 Val Val Glu Ile Arg Gln Gly Glu Glu Glu Trp Thr Thr Val Ser
E--> 3986 0705            20710            20715            20720
      3987 Thr Lys Gly Glu Val Arg Thr Thr Glu Tyr Val Val Ser Asn Leu Lys
      3988            20725            20730            20735
      3989 Pro Gly Val Asn Tyr Tyr Phe Arg Val Ser Ala Val Asn Cys Ala Gly
      3990            20740            20745            20750
      3991 Gln Gly Glu Pro Ile Glu Met Asn Glu Pro Val Gln Ala Lys Asp Ile
      3992            20755            20760            20765
      3993 Leu Glu Ala Pro Glu Ile Asp Leu Asp Val Ala Leu Arg Thr Ser Val
E--> 3994     20770            20775            20780                2
      3995 Ile Ala Lys Ala Gly Glu Asp Val Gln Val Leu Ile Pro Phe Lys Gly
E--> 3996 0785            20790            20795                2
      3997 Arg Pro Pro Pro Thr Val Thr Trp Arg Lys Asp Glu Lys Asn Leu Gly
      3998            20805            20810            20815
      3999 Ser Asp Ala Arg Tyr Ser Ile Glu Asn Thr Asp Ser Ser Leu Leu
      4000            20820            20825            20830
      4001 Thr Ile Pro Gln Val Thr Arg Asn Asp Thr Gly Lys Tyr Ile Leu Thr
      4002            20835            20840            20845
      4003 Ile Glu Asn Gly Val Gly Glu Pro Lys Ser Ser Thr Val Ser Val Lys
E--> 4004     20850            20855            20860                2
      4005 Val Leu Asp Thr Pro Ala Ala Cys Gln Lys Leu Gln Val Lys His Val
E--> 4006 0865            20870            20875            20880
      4007 Ser Arg Gly Thr Val Thr Leu Leu Trp Asp Pro Pro Leu Ile Asp Gly
      4008            20885            20890            20895
      4009 Gly Ser Pro Ile Ile Asn Tyr Val Ile Glu Lys Arg Asp Ala Thr Lys
      4010            20900            20905            20910
      4011 Arg Thr Trp Ser Val Val Ser His Lys Cys Ser Ser Thr Ser Phe Lys
      4012            20915            20920            20925
      4013 Leu Ile Asp Leu Ser Glu Lys Thr Pro Phe Phe Phe Arg Val Leu Ala
E--> 4014     20930            20935            20940                2
      4015 Glu Asn Glu Ile Gly Ile Gly Glu Pro Cys Glu Thr Thr Glu Pro Val
E--> 4016 0945            20950            20955            20960
      4017 Lys Ala Ala Glu Val Pro Ala Pro Ile Arg Asp Leu Ser Met Lys Asp
      4018            20965            20970            20975
      4019 Ser Thr Lys Thr Ser Val Ile Leu Ser Trp Thr Lys Pro Asp Phe Asp
      4020            20980            20985            20990
      4021 Gly Gly Ser Val Ile Thr Glu Tyr Val Val Glu Arg Lys Gly Lys Gly
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        4022        20995             21000              21005
        4023 Glu Gln Thr Trp Ser His Ala Gly Ile Ser Lys Thr Cys Glu Ile Glu
E--> 4024       21010             21015             21020              2
        4025 Val Ser Gln Leu Lys Glu Gln Ser Val Leu Glu Phe Arg Val Phe Ala
E--> 4026 1025              21030             21035             21040
        4027 Lys Asn Glu Lys Gly Leu Ser Asp Pro Val Thr Ile Gly Pro Ile Thr
        4028                   21045             21050             21055
        4029 Val Lys Glu Leu Ile Ile Thr Pro Glu Val Asp Leu Ser Asp Ile Pro
        4030       21060             21065             21070
        4031 Gly Ala Gln Val Thr Val Arg Ile Gly His Asn Val His Leu Glu Leu
        4032       21075             21080             21085
        4033 Pro Tyr Lys Gly Lys Pro Lys Pro Ser Ile Ser Trp Leu Lys Asp Gly
E--> 4034       21090             21095             21100              2
        4035 Leu Pro Leu Lys Glu Ser Glu Phe Val Arg Phe Ser Lys Thr Glu Asn
E--> 4036 1105              21110             21115             21120
        4037 Lys Ile Thr Leu Ser Ile Glu Lys Asn Ala Lys Glu His Gly Gly Lys
        4038                   21125             21130             21135
        4039 Tyr Thr Val Ile Leu Asp Asn Ala Val Cys Arg Ile Ala Val Pro Ile
        4040       21140             21145             21150
        4041 Thr Val Ile Thr Leu Gly Pro Pro Ser Lys Pro Lys Gly Pro Ile Arg
        4042       21155             21160             21165
        4043 Phe Asp Glu Ile Lys Ala Asp Ser Val Ile Leu Ser Trp Asp Val Pro
E--> 4044       21170             21175             21180              2
        4045 Glu Asp Asn Gly Gly Gly Glu Ile Thr Cys Tyr Ser Ile Glu Lys Arg
E--> 4046 1185              21190           , 21195             21200
        4047 Glu Thr Ser Gln Thr Asn Trp Lys Met Val Cys Ser Ser Val Ala Arg
        4048                   21205'            21210             21215
        4049 Thr Thr Phe Lys Val Pro Asn Leu Val Lys Asp Ala Glu Tyr Gln Phe
        4050       21220             21225             21230
        4051 Arg Val Arg Ala Glu Asn Arg Tyr Gly Val Ser Gln Pro Leu Val Ser
        4052       21235             21240             21245
        4053 Ser Ile Ile Val Ala Lys His Gln Phe Arg Ile Pro Gly Pro Pro Gly
E--> 4054       21250             21255             21260              2
        4055 Lys Pro Val Ile Tyr Asn Val Thr Ser Asp Gly Met Ser Leu Thr Trp
E--> 4056 1265              21270             21275             21280
        4057 Asp Ala Pro Val Tyr Asp Gly Gly Ser Glu Val Thr Gly Phe His Val
        4058                   21285             21290             21295
        4059 Glu Lys Lys Glu Arg Asn Ser Ile Leu Trp Gln Lys Val Asn Thr Ser
        4060       21300             21305             21310
        4061 Pro Ile Ser Gly Arg Glu Tyr Arg Ala Thr Gly Leu Val Glu Gly Leu
        4062       21315             21320             21325
        4063 Asp Tyr Gln Phe Arg Val Tyr Ala Glu Asn Ser Ala Gly Leu Ser Ser
E--> 4064       21330             21335             21340              2
        4065 Pro Ser Asp Pro Ser Lys Phe Thr Leu Ala Val Ser Pro Val Asp Pro
E--> 4066 1345              21350             21355             21360
        4067 Pro Gly Thr Pro Asp Tyr Ile Asp Val Thr Arg Glu Thr Ile Thr Leu
        4068                   21365             21370             21375
        4069 Lys Trp Asn Pro Pro Leu Arg Asp Gly Gly Ser Lys Ile Val Gly Tyr
        4070       21380             21385             21390
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      4071 Ser Ile Glu Lys Arg Gln Gly Asn Glu Arg Trp Val Arg Cys Asn Phe
      4072        21395             21400             21405
      4073 Thr Asp Val Ser Glu Cys Gln Tyr Thr Val Thr Gly Leu Ser Pro Gly
E--> 4074      21410             21415             21420          2
      4075 Asp Arg Tyr Glu Phe Arg Ile Ile Ala Arg Asn Ala Val Gly Thr Ile
E--> 4076 1425            21430             21435             21440
      4077 Ser Pro Pro Ser Gln Ser Ser Gly Ile Ile Met Thr Arg Asp Glu Asn
      4078             21445             21450             21455
      4079 Val Pro Pro Ile Val Glu Phe Gly Pro Glu Tyr Phe Asp Gly Leu Ile
      4080        21460             21465             21470
      4081 Ile Lys Ser Gly Glu Ser Leu Arg Ile Lys Ala Leu Val Gln Gly Arg
      4082        21475             21480             21485
      4083 Pro Val Pro Arg Val Thr Trp Phe Lys Asp Gly Val Glu Ile Glu Lys
E--> 4084      21490             21495             21500          2
      4085 Arg Met Asn Met Glu Ile Thr Asn Val Leu Gly Ser Thr Ser Leu Phe
E--> 4086 1505            21510             21515             21520
      4087 Val Arg Asp Ala Thr Arg Asp His Arg Gly Val Tyr Thr Val Glu Ala
      4088             21525             21530             21535
      4089 Lys Asn Ala Ser Gly Ser Ala Lys Ala Glu Ile Lys Val Lys Val Gln
      4090             21540             21545             21550
      4091 Asp Thr Pro Gly Lys Val Val Gly Pro Ile Arg Phe Thr Asn Ile Thr
      4092        21555             21560             21565
      4093 Gly Glu Lys Met Thr Leu Trp Trp Asp Ala Pro Leu Asn Asp Gly Cys
E--> 4094      21570             21575             21580          2
      4095 Ala Pro Ile Thr His Tyr Ile Ile Glu Lys Arg Glu Thr Ser Arg Leu
E--> 4096 1585            21590             21595             21600
      4097 Ala Trp Ala Leu Ile Glu Asp Lys Cys Glu Ala Gln Ser Tyr Thr Ala
      4098             21605             21610             21615
      4099 Ile Lys Leu Ile Asn Gly Asn Glu Tyr Gln Phe Arg Val Ser Ala Val
      4100             21620             21625             21630
      4101 Asn Lys Phe Gly Val Gly Arg Pro Leu Asp Ser Asp Pro Val Val Ala
      4102        21635             21640             21645
      4103 Gln Ile Gln Tyr Thr Val Pro Asp Ala Pro Gly Ile Pro Glu Pro Ser
E--> 4104      21650             21655             21660          2
      4105 Asn Ile Thr Gly Asn Ser Ile Thr Leu Thr Trp Ala Arg Pro Glu Ser
E--> 4106 1665            21670             21675             21680
      4107 Asp Gly Gly Ser Glu Ile Gln Gln Tyr Ile Leu Glu Arg Arg Glu Lys
      4108             21685             21690             21695
      4109 Lys Ser Thr Arg Trp Val Lys Val Ile Ser Lys Arg Pro Ile Ser Glu
      4110        21700             21705             21710
      4111 Thr Arg Phe Lys Val Thr Gly Leu Thr Glu Gly Asn Glu Tyr Glu Phe
      4112        21715             21720             21725
      4113 His Val Met Ala Glu Asn Ala Ala Gly Val Gly Pro Ala Ser Gly Ile
E--> 4114      21730             21735             21740          2
      4115 Ser Arg Leu Ile Lys Cys Arg Glu Pro Val Asn Pro Pro Gly Pro Pro
E--> 4116 1745            21750             21755             21760
      4117 Thr Val Val Lys Val Thr Asp Thr Ser Lys Thr Thr Val Ser Leu Glu
      4118        21765             21770             21775
      4119 Trp Ser Lys Pro Val Phe Asp Gly Gly Met Glu Ile Ile Gly Tyr Ile
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        4120        21780              21785              21790
        4121 Ile Glu Met Cys Lys Thr Asp Leu Gly Asp Trp His Lys Val Asn Ala
        4122      21795              21800              21805
        4123 Glu Ala Cys Val Lys Thr Arg Tyr Thr Val Thr Asp Leu Gln Ala Gly
E--> 4124     21810              21815              21820              2
        4125 Glu Glu Tyr Lys Phe Arg Val Ser Ala Ile Asn Gly Ala Gly Lys Gly
E--> 4126 1825              21830              21835              21840
        4127 Asp Ser Cys Glu Val Thr Gly Thr Ile Lys Ala Val Asp Arg Leu Thr
        4128            21845              21850              21855
        4129 Ala Pro Glu Leu Asp Ile Asp Ala Asn Phe Lys Gln Thr His Val Val
        4130            21860              21865              21870
        4131 Arg Ala Gly Ala Ser Ile Arg Leu Phe Ile Ala Tyr Gln Gly Arg Pro
        4132      21875              21880              21885
        4133 Thr Pro Thr Ala Val Trp Ser Lys Pro Asp Ser Asn Leu Ser Leu Arg
E--> 4134     21890              21895              21900              2
        4135 Ala Asp Ile His Thr Thr Asp Ser Phe Ser Thr Leu Thr Val Glu Asn
E--> 4136 1905              21910              21915              21920
        4137 Cys Asn Arg Asn Asp Ala Gly Lys Tyr Thr Leu Thr Val Glu Asn Asn
        4138            21925              21930              21935
        4139 Ser Gly Ser Lys Ser Ile Thr Phe Thr Val Lys Val Leu Asp Thr Pro
        4140            21940              21945              21950
        4141 Gly Pro Pro Gly Pro Ile Thr Phe Lys Asp Val Thr Arg Gly Ser Ala
        4142      21955              21960              21965
        4143 Thr Leu Met Trp Asp Ala Pro Leu Leu Asp Gly Gly Ala Arg Ile His
E--> 4144     21970              21975              21980              2
        4145 His Tyr Val Val Glu Lys Arg Glu Ala Ser Arg Arg Ser Trp Gln Val
E--> 4146 1985              21990              21995              22000
        4147 Ile Ser Glu Lys Cys Thr Arg Gln Ile Phe Lys Val Asn Asp Leu Ala
        4148            22005              22010              22015
        4149 Glu Gly Val Pro Tyr Tyr Phe Arg Val Ser Ala Val Asn Glu Tyr Gly
        4150            22020              22025              22030
        4151 Val Gly Glu Pro Tyr Glu Met Pro Glu Pro Ile Val Ala Thr Glu Gln
        4152      22035              22040              22045
        4153 Pro Ala Pro Pro Arg Arg Leu Asp Val Val Asp Thr Ser Lys Ser Ser
E--> 4154     22050              22055              22060              2
        4155 Ala Val Leu Ala Trp Leu Lys Pro Asp His Asp Gly Gly Ser Arg Ile
E--> 4156 2065              22070              22075              22080
        4157 Thr Gly Tyr Leu Leu Glu Met Arg Gln Lys Gly Ser Asp Leu Trp Val
        4158            22085              22090              22095
        4159 Glu Ala Gly His Thr Lys Gln Leu Thr Phe Thr Val Glu Arg Leu Val
        4160            22100              22105              22110
        4161 Glu Lys Thr Glu Tyr Glu Phe Arg Val Lys Ala Lys Asn Asp Ala Gly
        4162      22115              22120              22125
        4163 Tyr Ser Glu Pro Arg Glu Ala Phe Ser Ser Val Ile Ile Lys Glu Pro
E--> 4164     22130              22135              22140              2
        4165 Gln Ile Glu Pro Thr Ala Asp Leu Thr Gly Ile Thr Asn Gln Leu Ile
E--> 4166 2145              22150              22155              22160
        4167 Thr Cys Lys Ala Gly Ser Pro Phe Thr Ile Asp Val Pro Ile Ser Gly
        4168            22165              22170              22175
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        4169 Arg Pro Ala Pro Lys Val Thr Trp Lys Leu Glu Glu Met Arg Leu Lys
        4170          22180                22185                22190
        4171 Glu Thr Asp Arg Val Ser Ile Thr Thr Thr Lys Asp Arg Thr Thr Leu
        4172          22195                22200                22205
        4173 Thr Val Lys Asp Ser Met Arg Gly Asp Ser Gly Arg Tyr Phe Leu Thr
E--> 4174          22210                22215                22220          2
        4175 Leu Glu Asn Thr Ala Gly Val Lys Thr Phe Ser Val Thr Val Val Val
E--> 4176 2225                22230                22235                22240
        4177 Ile Gly Arg Pro Gly Pro Val Thr Gly Pro Ile Glu Val Ser Ser Val
        4178          22245                22250                22255
        4179 Ser Ala Glu Ser Cys Val Leu Ser Trp Gly Glu Pro Lys Asp Gly Gly
        4180          22260                22265                22270
        4181 Gly Thr Glu Ile Thr Asn Tyr Ile Val Glu Lys Arg Glu Ser Gly Thr
        4182          22275                22280                22285
        4183 Thr Ala Trp Gln Leu Val Asn Ser Ser Val Lys Arg Thr Gln Ile Lys
E--> 4184          22290                22295                22300          2
        4185 Val Thr His Leu Thr Lys Tyr Met Glu Tyr Ser Phe Arg Val Ser Ser
E--> 4186 2305                22310                22315                22320
        4187 Glu Asn Arg Phe Gly Val Ser Lys Pro Leu Glu Ser Ala Pro Ile Ile
        4188          22325                22330                22335
        4189 Ala Glu His Pro Phe Val Pro Pro Ser Ala Pro Thr Arg Pro Glu Val
        4190          22340                22345                22350
        4191 Tyr His Val Ser Ala Asn Ala Met Ser Ile Arg Trp Glu Glu Pro Tyr
        4192          22355                22360                22365
        4193 His Asp Gly Gly Ser Lys Ile Ile Gly Tyr Trp Val Glu Lys Lys Glu
E--> 4194          22370                22375                22380          2
        4195 Arg Asn Thr Ile Leu Trp Val Lys Glu Asn Lys Val Pro Cys Leu Glu
E--> 4196 2385                22390                22395                22400
        4197 Cys Asn Tyr Lys Val Thr Gly Leu Val Glu Gly Leu Glu Tyr Gln Phe
        4198          22405                22410                22415
        4199 Arg Thr Tyr Ala Leu Asn Ala Ala Gly Val Ser Lys Ala Ser Glu Ala
        4200          22420                22425                22430
        4201 Ser Arg Pro Ile Met Ala Gln Asn Pro Val Asp Ala Pro Gly Arg Pro
        4202          22435                22440                22445
        4203 Glu Val Thr Asp Val Thr Arg Ser Thr Val Ser Leu Ile Trp Ser Ala
E--> 4204          22450                22455                22460          2
        4205 Pro Ala Tyr Asp Gly Gly Ser Lys Val Val Gly Tyr Ile Ile Glu Arg
E--> 4206 2465                22470                22475                22480
        4207 Lys Pro Val Ser Glu Val Gly Asp Gly Arg Trp Leu Lys Cys Asn Tyr
        4208          22485                22490                22495
        4209 Thr Ile Val Ser Asp Asn Phe Phe Thr Val Thr Ala Leu Ser Glu Gly
        4210          22500                22505                22510
        4211 Asp Thr Tyr Glu Phe Arg Val Leu Ala Lys Asn Ala Ala Gly Val Ile
        4212          22515                22520                22525
        4213 Ser Lys Gly Ser Glu Ser Thr Gly Pro Val Thr Cys Arg Asp Glu Tyr
E--> 4214          22530                22535                22540          2
        4215 Ala Pro Pro Lys Ala Glu Leu Asp Ala Arg Leu His Gly Asp Leu Val
E--> 4216 2545                22550                22555                22560
        4217 Thr Ile Arg Ala Gly Ser Asp Leu Val Leu Asp Ala Ala Val Gly Gly
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      4218            22565            22570            22575
      4219 Lys Pro Glu Pro Lys Ile Ile Trp Thr Lys Gly Asp Lys Glu Leu Asp
      4220            22580            22585            22590
      4221 Leu Cys Glu Lys Val Ser Leu Gln Tyr Thr Gly Lys Arg Ala Thr Ala
      4222            22595            22600            22605
      4223 Val Ile Lys Phe Cys Asp Arg Ser Asp Ser Gly Lys Tyr Thr Leu Thr
E--> 4224            22610            22615            22620              2
      4225 Val Lys Asn Ala Ser Gly Thr Lys Ala Val Ser Val Met Val Lys Val
E--> 4226 2625            22630            22635            22640
      4227 Leu Asp Ser Pro Gly Pro Cys Gly Lys Leu Thr Val Ser Arg Val Thr
      4228            22645            22650            22655
      4229 Gln Glu Lys Cys Thr Leu Ala Trp Ser Leu Pro Gln Glu Asp Gly Gly
      4230            22660            22665            22670
      4231 Ala Glu Ile Thr His Tyr Ile Val Glu Arg Arg Glu Thr Ser Arg Leu
      4232            22675            22680            22685
      4233 Asn Trp Val Ile Val Glu Gly Glu Cys Pro Thr Leu Ser Tyr Val Val
E--> 4234            22690            22695            22700              2
      4235 Thr Arg Leu Ile Lys Asn Asn Glu Tyr Ile Phe Arg Val Arg Ala Val
E--> 4236 2705            22710            22715            22720
      4237 Asn Lys Tyr Gly Pro Gly Val Pro Val Glu Ser Glu Pro Ile Val Ala
      4238            22725            22730            22735
      4239 Arg Asn Ser Phe Thr Ile Pro Ser Pro Pro Gly Ile Pro Glu Glu Val
      4240            22740            22745            22750
      4241 Gly Thr Gly Lys Glu His Ile Ile Gln Trp Thr Lys Pro Glu Ser
      4242            22755            22760            22765
      4243 Asp Gly Gly Asn Glu Ile Ser Asn Tyr Leu Val Asp Lys Arg Glu Lys
E--> 4244            22770            22775            22780              2
      4245 Glu Ser Leu Arg Trp Thr Arg Val Asn Lys Asp Tyr Val Val Tyr Asp
E--> 4246 2785            22790            22795            22800
      4247 Thr Arg Leu Lys Val Thr Ser Leu Met Glu Gly Cys Asp Tyr Gln Phe
      4248            22805            22810            22815
      4249 Arg Val Thr Ala Val Asn Ala Ala Gly Asn Ser Glu Pro Ser Glu Arg
      4250            22820            22825            22830
      4251 Ser Asn Phe Ile Ser Cys Arg Glu Pro Ser Tyr Thr Pro Gly Pro Pro
      4252            22835            22840            22845
      4253 Ser Ala Pro Arg Val Val Asp Thr Thr Lys His Ser Ile Ser Leu Ala
E--> 4254            22850            22855            22860              2
      4255 Trp Thr Lys Pro Met Tyr Asp Gly Gly Thr Asp Ile Val Gly Tyr Val
E--> 4256 2865            22870            22875            22880
      4257 Leu Glu Met Gln Glu Lys Asp Thr Asp Gln Trp Tyr Arg Val His Thr
      4258            22885            22890            22895
      4259 Asn Ala Thr Ile Arg Asn Thr Glu Phe Thr Val Pro Asp Leu Lys Met
      4260            22900            22905            22910
      4261 Gly Gln Lys Tyr Ser Phe Arg Val Ala Ala Val Asn Val Lys Gly Met
      4262            22915            22920            22925
      4263 Ser Glu Tyr Ser Glu Ser Ile Ala Glu Ile Glu Pro Val Glu Arg Ile
E--> 4264            22930            22935            22940              2
      4265 Glu Ile Pro Asp Leu Glu Leu Ala Asp Asp Leu Lys Lys Thr Val Thr
E--> 4266 2945            22950            22955            22960
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      4267 Ile Arg Ala Gly Ala Ser Leu Arg Leu Met Val Ser Val Ser Gly Arg
      4268          22965                22970                22975
      4269 Pro Pro Pro Val Ile Thr Trp Ser Lys Gln Gly Ile Asp Leu Ala Ser
      4270          22980                22985                22990
      4271 Arg Ala Ile Ile Asp Thr Thr Glu Ser Tyr Ser Leu Leu Ile Val Asp
      4272          22995                23000                23005
      4273 Lys Val Asn Arg Tyr Asp Ala Gly Lys Tyr Thr Ile Glu Ala Glu Asn
E--> 4274          23010                23015                23020         2
      4275 Gln Ser Gly Lys Lys Ser Ala Thr Val Leu Val Lys Val Tyr Asp Thr
E--> 4276 3025                23030                23035                23040
      4277 Pro Gly Pro Cys Pro Ser Val Lys Val Lys Glu Val Ser Arg Asp Ser
      4278          23045                23050                23055
      4279 Val Thr Ile Thr Trp Glu Ile Pro Thr Ile Asp Gly Gly Ala Pro Ile
      4280          23060                23065                23070
      4281 Asn Asn Tyr Ile Val Glu Lys Arg Glu Ala Ala Met Arg Ala Phe Lys
      4282          23075                23080                23085
      4283 Thr Val Thr Thr Lys Cys Ser Lys Thr Leu Tyr Arg Ile Ser Gly Leu
E--> 4284          23090                23095                23100         2
      4285 Val Glu Gly Thr Met His Tyr Phe Arg Val Leu Pro Glu Asn Ile Tyr
E--> 4286 3105                23110                23115                23120
      4287 Gly Ile Gly Glu Pro Cys Glu Thr Ser Asp Ala Val Leu Val Ser Glu
      4288          23125                23130                23135
      4289 Val Pro Leu Val Pro Ala Lys Leu Glu Val Val Asp Val Thr Lys Ser
      4290          23140                23145                23150
      4291 Thr Val Thr Leu Ala Trp Glu Lys Pro Leu Tyr Asp Gly Gly Ser Arg
      4292          23155                23160                23165
      4293 Leu Thr Gly Tyr Val Leu Glu Ala Cys Lys Ala Gly Thr Glu Arg Trp
E--> 4294          23170                23175                23180         2
      4295 Met Lys Val Val Thr Leu Lys Pro Thr Val Leu Glu His Thr Val Thr
E--> 4296 3185                23190                23195                23200
      4297 Ser Leu Asn Glu Gly Glu Gln Tyr Leu Phe Arg Ile Arg Ala Gln Asn
      4298          23205                23210                23215
      4299 Glu Lys Gly Val Ser Glu Pro Arg Glu Thr Val Thr Ala Val Thr Val
      4300          23220                23225                23230
      4301 Gln Asp Leu Arg Val Leu Pro Thr Ile Asp Leu Ser Thr Met Pro Gln
      4302          23235                23240                23245
      4303 Lys Thr Ile His Val Pro Ala Gly Arg Pro Val Glu Leu Val Ile Pro
E--> 4304          23250                23255                23260         2
      4305 Ile Ala Gly Arg Pro Pro Pro Ala Ala Ser Trp Phe Phe Ala Gly Ser
E--> 4306 3265                23270                23275                23280
      4307 Lys Leu Arg Glu Ser Glu Arg Val Thr Val Glu Thr His Thr Lys Val
      4308          23285                23290                23295
      4309 Ala Lys Leu Thr Ile Arg Glu Thr Thr Ile Arg Asp Thr Gly Glu Tyr
      4310          23300                23305                23310
      4311 Thr Leu Glu Leu Lys Asn Val Thr Gly Thr Thr Ser Glu Thr Ile Lys
      4312          23315                23320                23325
      4313 Val Ile Ile Leu Asp Lys Pro Gly Pro Pro Thr Gly Pro Ile Lys Ile
E--> 4314          23330                23335                23340         2
      4315 Asp Glu Ile Asp Ala Thr Ser Ile Thr Ile Ser Trp Glu Pro Pro Glu
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E--> 4316 3345            23350            23355            23360
     4317 Leu Asp Gly Gly Ala Pro Leu Ser Gly Tyr Val Val Glu Gln Arg Asp
     4318            23365            23370            23375
     4319 Ala His Arg Pro Gly Trp Leu Pro Val Ser Glu Ser Val Thr Arg Ser
     4320            23380            23385            23390
     4321 Thr Phe Lys Phe Thr Arg Leu Thr Glu Gly Asn Glu Tyr Val Phe Arg
     4322            23395            23400            23405
     4323 Val Ala Ala Thr Asn Arg Phe Gly Ile Gly Ser Tyr Leu Gln Ser Glu
E--> 4324      23410            23415            23420            2
     4325 Val Ile Glu Cys Arg Ser Ser Ile Arg Ile Pro Gly Pro Pro Glu Thr
E--> 4326 3425            23430            23435            23440
     4327 Leu Gln Ile Phe Asp Val Ser Arg Asp Gly Met Thr Leu Thr Trp Tyr
     4328            23445            23450            23455
     4329 Pro Pro Glu Asp Asp Gly Gly Ser Gln Val Thr Gly Tyr Ile Val Glu
     4330            23460            23465            23470
     4331 Arg Lys Glu Val Arg Ala Asp Arg Trp Val Arg Val Asn Lys Val Pro
     4332      23475            23480            23485
     4333 Val Thr Met Thr Arg Tyr Arg Ser Thr Gly Leu Thr Glu Gly Leu Glu
E--> 4334      23490            23495            23500            2
     4335 Tyr Glu His Arg Val Thr Ala Ile Asn Ala Arg Gly Ser Gly Lys Pro
E--> 4336 3505            23510            23515            23520
     4337 Ser Arg Pro Ser Lys Pro Ile Val Ala Met Asp Pro Ile Ala Pro Pro
     4338            23525            23530            23535
     4339 Gly Lys Pro Gln Asn Pro Arg Val Thr Asp Thr Thr Arg Thr Ser Val
     4340            23540            23545            23550
     4341 Ser Leu Ala Trp Ser Val Pro Glu Asp Glu Gly Gly Ser Lys Val Thr
     4342      23555            23560            23565
     4343 Gly Tyr Leu Ile Glu Met Gln Lys Val Asp Gln His Glu Trp Thr Lys
E--> 4344      23570            23575            23580            2
     4345 Cys Asn Thr Thr Pro Thr Lys Ile Arg Glu Tyr Thr Leu Thr His Leu
E--> 4346 3585            23590            23595            23600
     4347 Pro Gln Gly Ala Glu Tyr Arg Phe Arg Val Leu Ala Cys Asn Ala Gly
     4348            23605            23610            23615
     4349 Gly Pro Gly Glu Pro Ala Glu Val Pro Gly Thr Val Lys Val Thr Glu
     4350            23620            23625            23630
     4351 Met Leu Glu Tyr Pro Asp Tyr Glu Leu Asp Glu Arg Tyr Gln Glu Gly
     4352      23635            23640            23645
     4353 Ile Phe Val Arg Gln Gly Gly Val Ile Arg Leu Thr Ile Pro Ile Lys
E--> 4354      23650            23655            23660            2
     4355 Gly Lys Pro Phe Pro Ile Cys Lys Trp Thr Lys Glu Gly Gln Asp Ile
E--> 4356 3665            23670            23675            23680
     4357 Ser Lys Arg Ala Met Ile Ala Thr Ser Glu Thr His Thr Glu Leu Val
     4358            23685            23690            23695
     4359 Ile Lys Glu Ala Asp Arg Gly Asp Ser Gly Thr Tyr Asp Leu Val Leu
     4360            23700            23705            23710
     4361 Glu Asn Lys Cys Gly Lys Lys Ala Val Tyr Ile Lys Val Arg Val Ile
     4362      23715            23720            23725
     4363 Gly Ser Pro Asn Ser Pro Glu Gly Pro Leu Glu Tyr Asp Asp Ile Gln
E--> 4364      23730            23735            23740            2
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      4365 Val Arg Ser Val Arg Val Ser Trp Arg Pro Pro Ala Asp Asp Gly Gly
E--> 4366 3745          23750          23755          23760
      4367 Ala Asp Ile Leu Gly Tyr Ile Leu Glu Arg Arg Glu Val Pro Lys Ala
      4368          23765          23770          23775
      4369 Ala Trp Tyr Thr Ile Asp Ser Arg Val Arg Gly Thr Ser Leu Val Val
      4370          23780          23785          23790
      4371 Lys Gly Leu Lys Glu Asn Val Glu Tyr His Phe Arg Val Ser Ala Glu
      4372          23795          23800          23805
      4373 Asn Gln Phe Gly Ile Ser Lys Pro Leu Lys Ser Glu Glu Pro Val Thr
E--> 4374    23810          23815          23820              2
      4375 Pro Lys Thr Pro Leu Asn Pro Pro Glu Pro Pro Ser Asn Pro Pro Glu
E--> 4376 3825          23830          23835          23840
      4377 Val Leu Asp Val Thr Lys Ser Ser Val Ser Leu Ser Trp Ser Arg Pro
      4378          23845          23850          23855
      4379 Lys Asp Asp Gly Gly Ser Arg Val Thr Gly Tyr Tyr Ile Glu Arg Lys
      4380          23860          23865          23870
      4381 Glu Thr Ser Thr Asp Lys Trp Val Arg His Asn Lys Thr Gln Ile Thr
      4382          23875          23880          23885
      4383 Thr Thr Met Tyr Thr Val Thr Gly Leu Val Pro Asp Ala Glu Tyr Gln
E--> 4384    23890          23895          23900              2
      4385 Phe Arg Ile Ile Ala Gln Asn Asp Val Gly Leu Ser Glu Thr Ser Pro
E--> 4386 3905          23910          23915          23920
      4387 Ala Ser Glu Pro Val Val Cys Lys Asp Pro Phe Asp Lys Pro Ser Gln
      4388          23925          23930          23935
      4389 Pro Gly Glu Leu Glu Ile Leu Ser Ile Ser Lys Asp Ser Val Thr Leu
      4390          23940          23945          23950
      4391 Gln Trp Glu Lys Pro Glu Cys Asp Gly Gly Lys Glu Ile Leu Gly Tyr
      4392          23955          23960          23965
      4393 Trp Val Glu Tyr Arg Gln Ser Gly Asp Ser Ala Trp Lys Lys Ser Asn
E--> 4394    23970          23975          23980              2
      4395 Lys Glu Arg Ile Lys Asp Lys Gln Phe Thr Ile Gly Gly Leu Leu Glu
E--> 4396 3985          23990          23995          24000
      4397 Ala Thr Glu Tyr Glu Phe Arg Val Phe Ala Glu Asn Glu Thr Gly Leu
      4398          24005          24010          24015
      4399 Ser Arg Pro Arg Arg Thr Ala Met Ser Ile Lys Thr Lys Leu Thr Ser
      4400          24020          24025          24030
      4401 Gly Glu Ala Pro Gly Ile Arg Lys Glu Met Lys Asp Val Thr Thr Lys
      4402          24035          24040          24045
      4403 Leu Gly Glu Ala Ala Gln Leu Ser Cys Gln Ile Val Gly Arg Pro Leu
E--> 4404    24050          24055          24060              2
      4405 Pro Asp Ile Lys Trp Tyr Arg Phe Gly Lys Glu Leu Ile Gln Ser Arg
E--> 4406 4065          24070          24075          24080
      4407 Lys Tyr Lys Met Ser Ser Asp Gly Arg Thr His Thr Leu Thr Val Met
      4408          24085          24090          24095
      4409 Thr Glu Glu Gln Glu Asp Glu Gly Val Tyr Thr Cys Ile Ala Thr Asn
      4410          24100          24105          24110
      4411 Glu Val Gly Glu Val Glu Thr Ser Ser Lys Leu Leu Leu Gln Ala Thr
      4412          24115          24120          24125
      4413 Pro Gln Phe His Pro Gly Tyr Pro Leu Lys Glu Lys Tyr Tyr Gly Ala
```

RAW SEQUENCE LISTING   DATE: 01/29/2001
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Input Set : A:\00786.381002.SEQLIST.TXT
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E--> 4414   24130              24135              24140          2
     4415 Val Gly Ser Thr Leu Arg Leu His Val Met Tyr Ile Gly Arg Pro Val
E--> 4416 4145              24150              24155              24160
     4417 Pro Ala Met Thr Trp Phe His Gly Gln Lys Leu Leu Gln Asn Ser Glu
     4418              24165              24170              24175
     4419 Asn Ile Thr Ile Glu Asn Thr Glu His Tyr Thr His Leu Val Met Lys
     4420              24180              24185              24190
     4421 Asn Val Gln Arg Lys Thr His Ala Gly Lys Tyr Lys Val Gln Leu Ser
     4422              24195              24200              24205
     4423 Asn Val Phe Gly Thr Val Asp Ala Ile Leu Asp Val Glu Ile Gln Asp
E--> 4424   24210              24215              24220          2
     4425 Lys Pro Asp Lys Pro Thr Gly Pro Ile Val Glu Ala Leu Leu Lys
E--> 4426 4225              24230              24235              24240
     4427 Asn Ser Ala Val Ile Ser Trp Lys Pro Pro Ala Asp Asp Gly Gly Ser
     4428              24245              24250              24255
     4429 Trp Ile Thr Asn Tyr Val Val Glu Lys Cys Glu Ala Lys Glu Gly Ala
     4430              24260              24265              24270
     4431 Glu Trp Gln Leu Val Ser Ser Ala Ile Ser Val Thr Thr Cys Arg Ile
     4432              24275              24280              24285
     4433 Val Asn Leu Thr Glu Asn Ala Gly Tyr Tyr Phe Arg Val Ser Ala Gln
E--> 4434   24290              24295              24300          2
     4435 Asn Thr Phe Gly Ile Ser Asp Pro Leu Glu Val Ser Ser Val Val Ile
E--> 4436 4305              24310              24315              24320
     4437 Ile Lys Ser Pro Phe Glu Lys Pro Gly Ala Pro Gly Lys Pro Thr Ile
     4438              24325              24330              24335
     4439 Thr Ala Val Thr Lys Asp Ser Cys Val Val Ala Trp Lys Pro Pro Ala
     4440              24340              24345              24350
     4441 Ser Asp Gly Gly Ala Lys Ile Arg Asn Tyr Tyr Leu Glu Lys Arg Glu
     4442              24355              24360              24365
     4443 Lys Lys Gln Asn Lys Trp Ile Ser Val Thr Thr Glu Glu Ile Arg Glu
E--> 4444   24370              24375              24380          2
     4445 Thr Val Phe Ser Val Lys Asn Leu Ile Glu Gly Leu Glu Tyr Glu Phe
E--> 4446 4385              24390              24395              24400
     4447 Arg Val Lys Cys Glu Asn Leu Gly Gly Glu Ser Glu Trp Ser Glu Ile
     4448              24405              24410              24415
     4449 Ser Glu Pro Ile Thr Pro Lys Ser Asp Val Pro Ile Gln Ala Pro His
     4450              24420              24425              24430
     4451 Phe Lys Glu Glu Leu Arg Asn Leu Asn Val Arg Tyr Gln Ser Asn Ala
     4452              24435              24440              24445
     4453 Thr Leu Val Cys Lys Val Thr Gly His Pro Lys Pro Ile Val Lys Trp
E--> 4454   24450              24455              24460          2
     4455 Tyr Arg Gln Gly Lys Glu Ile Ile Ala Asp Gly Leu Lys Tyr Arg Ile
E--> 4456 4465              24470              24475              24480
     4457 Gln Glu Phe Lys Gly Gly Tyr His Gln Leu Ile Ile Ala Ser Val Thr
     4458              24485              24490              24495
     4459 Asp Asp Asp Ala Thr Val Tyr Gln Val Arg Ala Thr Asn Gln Gly Gly
     4460              24500              24505              24510
     4461 Ser Val Ser Gly Thr Ala Ser Leu Glu Val Glu Val Pro Ala Lys Ile
     4462              24515              24520              24525
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        4463 His Leu Pro Lys Thr Leu Glu Gly Met Gly Ala Val His Ala Leu Arg
E--> 4464    24530                24535                24540              2
        4465 Gly Glu Val Val Ser Ile Lys Ile Pro Phe Ser Gly Lys Pro Asp Pro
E--> 4466 4545                24550                24555              24560
        4467 Val Ile Thr Trp Gln Lys Gly Gln Asp Leu Ile Asp Asn Asn Gly His
        4468                24565                24570                24575
        4469 Tyr Gln Val Ile Val Thr Arg Ser Phe Thr Ser Leu Val Phe Pro Asn
        4470                24580                24585                24590
        4471 Gly Val Glu Arg Lys Asp Ala Gly Phe Tyr Val Val Cys Ala Lys Asn
        4472        24595                24600                24605
        4473 Arg Phe Gly Ile Asp Gln Lys Thr Val Glu Leu Asp Val Ala Asp Val
E--> 4474    24610                24615                24620              2
        4475 Pro Asp Pro Pro Arg Gly Val Lys Val Ser Asp Ala Ser Arg Asp Ser
E--> 4476 4625                24630                24635              24640
        4477 Val Asn Leu Thr Trp Thr Glu Pro Ala Ser Asp Gly Gly Ser Lys Ile
        4478                24645                24650                24655
        4479 Thr Asn Tyr Ile Val Glu Lys Cys Ala Thr Thr Ala Glu Arg Trp Leu
        4480                24660                24665                24670
        4481 Arg Val Gly Gln Ala Arg Glu Thr Arg Tyr Thr Val Ile Asn Leu Phe
        4482        24675                24680                24685
        4483 Gly Lys Thr Ser Tyr Gln Phe Arg Val Ile Ala Glu Asn Lys Phe Gly
E--> 4484    24690                24695                24700              2
        4485 Leu Ser Lys Pro Ser Glu Pro Ser Glu Pro Thr Ile Thr Lys Glu Asp
E--> 4486 4705                24710                24715              24720
        4487 Lys Thr Arg Ala Met Asn Tyr Asp Glu Glu Val Asp Glu Thr Arg Glu
        4488                24725                24730                24735
        4489 Val Ser Met Thr Lys Ala Ser His Ser Ser Thr Lys Glu Leu Tyr Glu
        4490                24740                24745                24750
        4491 Lys Tyr Met Ile Ala Glu Asp Leu Gly Arg Gly Glu Phe Gly Ile Val
        4492        24755                24760                24765
        4493 His Arg Cys Val Glu Thr Ser Ser Lys Lys Thr Tyr Met Ala Lys Phe
E--> 4494    24770                24775                24780              2
        4495 Val Lys Val Lys Gly Thr Asp Gln Val Leu Val Lys Lys Gln Ile Ser
E--> 4496 4785                24790                24795              24800
        4497 Ile Leu Asn Ile Ala Arg His Arg Asn Ile Leu His Leu His Glu Ser
        4498                24805                24810                24815
        4499 Phe Glu Ser Met Glu Glu Leu Val Met Ile Phe Glu Phe Ile Ser Gly
        4500                24820                24825                24830
        4501 Leu Asp Ile Phe Glu Arg Ile Asn Thr Ser Ala Phe Glu Leu Asn Glu
        4502        24835                24840                24845
        4503 Arg Glu Ile Val Ser Tyr Val His Gln Val Cys Glu Ala Leu Gln Phe
E--> 4504    24850                24855                24860              2
        4505 Leu His Ser His Asn Ile Gly His Phe Asp Ile Arg Pro Glu Asn Ile
E--> 4506 4865                24870                24875              24880
        4507 Ile Tyr Gln Thr Arg Arg Ser Ser Thr Ile Lys Ile Ile Glu Phe Gly
        4508                24885                24890                24895
        4509 Gln Ala Arg Gln Leu Lys Pro Gly Asp Asn Phe Arg Leu Leu Phe Thr
        4510                24900                24905                24910
        4511 Ala Pro Glu Tyr Tyr Ala Pro Glu Val His Gln His Asp Val Val Ser
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        4512        24915              24920              24925
        4513 Thr Ala Thr Asp Met Trp Ser Leu Gly Thr Leu Val Tyr Val Leu Leu
E--> 4514        24930              24935              24940             2
        4515 Ser Gly Ile Asn Pro Phe Leu Ala Glu Thr Asn Gln Gln Ile Ile Glu
E--> 4516 4945              24950              24955              24960
        4517 Asn Ile Met Asn Ala Glu Tyr Thr Phe Asp Glu Glu Ala Phe Lys Glu
        4518        .       24965              24970              24975
        4519 Ile Ser Ile Glu Ala Met Asp Phe Val Asp Arg Leu Leu Val Lys Glu
        4520        24980              24985              24990
        4521 Arg Lys Ser Arg Met Thr Ala Ser Glu Ala Leu Gln His Pro Trp Leu
        4522        24995              25000              25005
        4523 Lys Gln Lys Ile Glu Arg Val Ser Thr Lys Val Ile Arg Thr Leu Lys
E--> 4524        25010              25015              25020             2
        4525 His Arg Arg Tyr Tyr His Thr Leu Ile Lys Lys Asp Leu Asn Met Val
E--> 4526 5025              25030              25035              25040
        4527 Val Ser Ala Ala Arg Ile Ser Cys Gly Gly Ala Ile Arg Ser Gln Lys
        4528              25045              25050              25055
        4529 Gly Val Ser Val Ala Lys Val Lys Val Ala Ser Ile Glu Ile Gly Pro
        4530              25060              25065              25070
        4531 Val Ser Gly Gln Ile Met His Ala Val Gly Glu Glu Gly Gly His Val
        4532        25075              25080              25085
        4533 Lys Tyr Val Cys Lys Ile Glu Asn Tyr Asp Gln Ser Thr Gln Val Thr
E--> 4534        25090              25095              25100             2
        4535 Trp Tyr Phe Gly Val Arg Gln Leu Glu Asn Ser Lys Tyr Glu Ile
E--> 4536 5105              25110              25115              25120
        4537 Thr Tyr Glu Asp Gly Val Ala Ile Leu Tyr Val Lys Asp Ile Thr Lys
        4538              25125              25130              25135
        4539 Leu Asp Asp Gly Thr Tyr Arg Cys Lys Val Val Asn Asp Tyr Gly Glu
        4540              25140              25145              25150
        4541 Asp Ser Ser Tyr Ala Glu Leu Phe Val Lys Gly Val Arg Glu Val Tyr
        4542        25155              25160              25165
        4543 Asp Tyr Tyr Cys Arg Arg Thr Met Lys Lys Ile Lys Arg Arg Thr Asp
E--> 4544        25170              25175              25180             2
        4545 Thr Met Arg Leu Leu Glu Arg Pro Pro Glu Phe Thr Leu Pro Leu Tyr
E--> 4546 5185              25190              25195              25200
        4547 Asn Lys Thr Ala Tyr Val Gly Glu Asn Val Arg Phe Gly Val Thr Ile
        4548              25205              25210              25215
        4549 Thr Val His Pro Glu Pro His Val Thr Trp Tyr Lys Ser Gly Gln Lys
        4550              25220              25225              25230
        4551 Ile Lys Pro Gly Asp Asn Asp Lys Lys Tyr Thr Phe Glu Ser Asp Lys
        4552        25235         .        .   25240              25245
        4553 Gly Leu Tyr Gln Leu Thr Ile Asn Ser Val Thr Thr Asp Asp Ala
E--> 4554        25250              25255              25260             2
        4555 Glu Tyr Thr Val Val Ala Arg Asn Lys Tyr Gly Glu Asp Ser Cys Lys
E--> 4556 5265              25270              25275              25280
        4557 Ala Lys Leu Thr Val Thr Leu His Pro Pro Pro Thr Asp Ser Thr Leu
        4558              25285              25290              25295
        4559 Arg Pro Met Phe Lys Arg Leu Leu Ala Asn Ala Glu Cys Gln Glu Gly
        4560              25300              25305              25310
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        RAW SEQUENCE LISTING               DATE: 01/29/2001
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        Input Set : A:\00786.381002.SEQLIST.TXT
        Output Set: N:\CRF3\01292001\I759508.raw

    4561 Gln Ser Val Cys Phe Glu Ile Arg Val Ser Gly Ile Pro Pro Pro Thr
    4562      25315              25320              25325
    4563 Leu Lys Trp Glu Lys Asp Gly Gln Pro Leu Ser Leu Gly Pro Asn Ile
E--> 4564      25330              25335              25340              2
    4565 Glu Ile Ile His Glu Gly Leu Asp Tyr Tyr Ala Leu His Ile Arg Asp
E--> 4566 5345               25350              25355              25360
    4567 Thr Leu Pro Glu Asp Thr Gly Tyr Tyr Arg Val Thr Ala Thr Asn Thr
    4568      25365              25370              25375
    4569 Ala Gly Ser Thr Ser Cys Gln Ala His Leu Gln Val Glu Arg Leu Arg
    4570      25380              25385              25390
    4571 Tyr Lys Lys Gln Glu Phe Lys Ser Lys Glu Glu His Glu Arg His Val
    4572      25395              25400              25405
    4573 Gln Lys Gln Ile Asp Lys Thr Leu Arg Met Ala Glu Ile Leu Ser Gly
E--> 4574      25410              25415              25420              2
    4575 Thr Glu Ser Val Pro Leu Thr Gln Val Ala Glu Ala Leu Arg Glu
E--> 4576 5425               25430              25435              25440
    4577 Ala Ala Val Leu Tyr Lys Pro Ala Val Ser Thr Lys Thr Val Lys Gly
    4578      25445              25450              25455
    4579 Glu Phe Arg Leu Glu Ile Glu Glu Lys Lys Glu Glu Arg Lys Leu Arg
    4580      25460              25465              25470
    4581 Met Pro Tyr Asp Val Pro Glu Pro Arg Lys Tyr Lys Gln Thr Thr Ile
    4582      25475              25480              25485
    4583 Glu Glu Asp Gln Arg Ile Lys Gln Phe Val Pro Met Ser Asp Met Lys
E--> 4584      25490              25495              25500              2
    4585 Trp Tyr Lys Lys Ile Arg Asp Gln Tyr Glu Met Pro Gly Lys Leu Asp
E--> 4586 5505               25510              25515              25520
    4587 Arg Val Val Gln Lys Arg Pro Lys Arg Ile Arg Leu Ser Arg Trp Glu
    4588      25525              25530              25535
    4589 Gln Phe Tyr Val Met Pro Leu Pro Arg Ile Thr Asp Gln Tyr Arg Pro
    4590      25540              25545              25550
    4591 Lys Trp Arg Ile Pro Lys Leu Ser Gln Asp Asp Leu Glu Ile Val Arg
    4592      25555              25560              25565
    4593 Pro Ala Arg Arg Arg Thr Pro Ser Pro Asp Tyr Asp Phe Tyr Tyr Arg
E--> 4594      25570              25575              25580              2
    4595 Pro Arg Arg Arg Ser Leu Gly Asp Ile Ser Asp Glu Glu Leu Leu Leu
E--> 4596 5585               25590              25595              25600
    4597 Pro Ile Asp Asp Tyr Leu Ala Met Lys Arg Thr Glu Glu Glu Arg Leu
    4598      25605              25610              25615
    4599 Arg Leu Glu Glu Glu Leu Glu Leu Gly Phe Ser Ala Ser Pro Pro Ser
    4600      25620              25625              25630
    4601 Arg Ser Pro Pro His Phe Glu Leu Ser Ser Leu Arg Tyr Ser Ser Pro
    4602 .    25635              25640              25645
    4603 Gln Ala His Val Lys Val Glu Glu Thr Arg Lys Asn Phe Arg Tyr Ser
E--> 4604      25650              25655              25660              2
    4605 Thr Tyr His Ile Pro Thr Lys Ala Glu Ala Ser Thr Ser Tyr Ala Glu
E--> 4606 5665               25670              25680
    4607 Leu Arg Glu Arg His Ala Gln Ala Ala Tyr Arg Gln Pro Lys Gln Arg
    4608      25685              25690              25695
    4609 Gln Arg Ile Met Ala Glu Arg Glu Asp Glu Glu Leu Leu Arg Pro Val
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              RAW SEQUENCE LISTING                    DATE: 01/29/2001
              PATENT APPLICATION:  US/09/759,508      TIME: 13:24:54

              Input Set : A:\00786.381002.SEQLIST.TXT
              Output Set: N:\CRF3\01292001\I759508.raw

        4610          25700              25705              25710
        4611 Thr Thr Thr Gln His Leu Ser Glu Tyr Lys Ser Glu Leu Asp Phe Met
        4612          25715              25720              25725
        4613 Ser Lys Glu Glu Lys Ser Arg Lys Lys Ser Arg Arg Gln Arg Glu Val
E--> 4614          25730              25735              25740             2
        4615 Thr Glu Ile Thr Glu Ile Glu Glu Glu Tyr Glu Ile Ser Lys His Ala
E--> 4616 5745          25750              25755              25760
        4617 Gln Arg Glu Ser Ser Ser Ser Ala Ser Arg Leu Leu Arg Arg Arg Arg
        4618          25765              25770              25775
        4619 Ser Leu Ser Pro Thr Tyr Ile Glu Leu Met Arg Pro Val Ser Glu Leu
        4620          25780              25785              25790
        4621 Ile Arg Ser Arg Pro Gln Pro Ala Glu Glu Tyr Glu Asp Asp Thr Glu
        4622          25795              25800              25805
        4623 Arg Arg Ser Pro Thr Pro Glu Arg Thr Arg Pro Arg Ser Pro Ser Pro
E--> 4624          25810              25815              25820             2
        4625 Val Ser Ser Glu Arg Ser Leu Ser Arg Phe Glu Arg Ser Ala Arg Phe
E--> 4626 5825          25830              25835              25840
        4627 Asp Ile Phe Ser Arg Tyr Glu Ser Met Lys Ala Ala Leu Lys Thr Gln
        4628          25845              25850              25855
        4629 Lys Thr Ser Glu Arg Lys Tyr Glu Val Leu Ser Gln Gln Pro Phe Thr
        4630          25860              25865              25870
        4631 Leu Asp His Ala Pro Arg Ile Thr Leu Arg Met Arg Ser His Arg Val
        4632          25875              25880              25885
        4633 Pro Cys Gly Gln Asn Thr Arg Phe Ile Leu Asn Val Gln Ser Lys Pro
E--> 4634          25890              25895              25900             2
        4635 Thr Ala Glu Val Lys Trp Tyr His Asn Gly Val Glu Leu Gln Glu Ser
E--> 4636 5905          25910              25915              25920
        4637 Ser Lys Ile His Tyr Thr Asn Thr Ser Gly Val Leu Thr Leu Glu Ile
        4638          25925              25930              25935
        4639 Leu Asp Cys His Thr Asp Asp Ser Gly Thr Tyr Arg Ala Val Cys Thr
        4640          25940              25945              25950
        4641 Asn Tyr Lys Gly Glu Ala Ser Asp Tyr Ala Thr Leu Asp Val Thr Gly
        4642          25955              25960              25965
        4643 Gly Asp Tyr Thr Thr Tyr Ala Ser Gln Arg Arg Asp Glu Glu Val Pro
E--> 4644          25970              25975              25980             2
        4645 Arg Ser Val Phe Pro Glu Leu Thr Arg Thr Glu Ala Tyr Ala Val Pro
E--> 4646 5985          25990              25995              26000
        4647 Ser Phe Lys Lys Thr Ser Glu Met Glu Ala Ser Ser Ser Val Arg Glu
        4648          26005              26010              26015
        4649 Val Lys Ser Gln Met Thr Glu Thr Arg Glu Ser Leu Ser Ser Tyr Glu
        4650          26020              26025              26030
        4651 His Ser Ala Ser Ala Glu Met Lys Ser Ala Ala Leu Glu Glu Lys Ser
        4652          26035              26040              26045
        4653 Leu Glu Glu Lys Ser Thr Thr Arg Lys Ile Lys Thr Thr Leu Ala Ala
E--> 4654          26050              26055              26060             2
        4655 Arg Ile Leu Thr Lys Pro Arg Ser Met Thr Val Tyr Glu Gly Glu Ser
E--> 4656 6065          26070              26075              26080
        4657 Ala Arg Phe Ser Cys Asp Thr Asp Gly Glu Pro Val Pro Thr Val Thr
        4658          26085              26090              26095
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      4659 Trp Leu Arg Lys Gly Gln Val Leu Ser Thr Ser Ala Arg His Gln Val
      4660          26100              26105              26110
      4661 Thr Thr Thr Lys Tyr Lys Ser Thr Phe Glu Ile Ser Ser Val Gln Ala
      4662          26115              26120              26125
      4663 Ser Asp Glu Gly Asn Tyr Ser Val Val Val Glu Asn Ser Glu Gly Lys
E--> 4664          26130              26135              26140            2
      4665 Gln Glu Ala Glu Phe Thr Leu Thr Ile Gln Lys Ala Arg Val Thr Glu
E--> 4666 6145             26150              26155              26160
      4667 Lys Ala Val Thr Ser Pro Pro Arg Val Lys Ser Pro Glu Pro Arg Val
      4668          26165              26170              26175
      4669 Lys Ser Pro Glu Ala Val Lys Ser Pro Lys Arg Val Lys Ser Pro Glu
      4670          26180              26185              26190
      4671 Pro Ser His Pro Lys Ala Val Ser Pro Thr Glu Thr Lys Pro Thr Pro
      4672          26195              26200              26205
      4673 Arg Glu Lys Val Gln His Leu Pro Val Ser Ala Pro Pro Lys Ile Thr
E--> 4674          26210              26215              26220            2
      4675 Gln Phe Leu Lys Ala Glu Ala Ser Lys Glu Ile Ala Lys Leu Thr Cys
E--> 4676 6225             26230              26235              26240
      4677 Val Val Glu Ser Ser Val Leu Arg Ala Lys Glu Val Thr Trp Tyr Lys
      4678          26245              26250              26255
      4679 Asp Gly Lys Lys Leu Lys Glu Asn Gly His Phe Gln Phe His Tyr Ser
      4680          26260              26265              26270
      4681 Ala Asp Gly Thr Tyr Glu Leu Lys Ile Asn Asn Leu Thr Glu Ser Asp
      4682          26275              26280              26285
      4683 Gln Gly Glu Tyr Val Cys Glu Ile Ser Gly Glu Gly Gly Thr Ser Lys
E--> 4684          26290              26295              26300            2
      4685 Thr Asn Leu Gln Phe Met Gly Gln Ala Phe Lys Ser Ile His Glu Lys
E--> 4686 6305             26310              26315              26320
      4687 Val Ser Lys Ile Ser Glu Thr Lys Lys Ser Asp Gln Lys Thr Thr Glu
      4688          26325              26330              26335
      4689 Ser Thr Val Thr Arg Lys Thr Glu Pro Lys Ala Pro Glu Pro Ile Ser
      4690          26340              26345              26350
      4691 Ser Lys Pro Val Ile Val Thr Gly Leu Gln Asp Thr Thr Val Ser Ser
      4692          26355              26360              26365
      4693 Asp Ser Val Ala Lys Phe Ala Val Lys Ala Thr Gly Glu Pro Arg Pro
E--> 4694          26370              26375              26380            2
      4695 Thr Ala Ile Trp Thr Lys Asp Gly Lys Ala Ile Thr Gln Gly Gly Lys
E--> 4696 6385             26390              26395              26400
      4697 Tyr Lys Leu Ser Glu Asp Lys Gly Gly Phe Phe Leu Glu Ile His Lys
      4698          26405              26410              26415
      4699 Thr Asp Thr Ser Asp Ser Gly Leu Tyr Thr Cys Thr Val Lys Asn Ser
      4700          26420              26425              26430
      4701 Ala Gly Ser Val Ser Ser Ser Cys Lys Leu Thr Ile Lys Ala Ile Lys
      4702          26435              26440              26445
      4703 Asp Thr Glu Ala Gln Lys Val Ser Thr Gln Lys Thr Ser Glu Ile Thr
E--> 4704          26450              26455              26460            2
      4705 Pro Gln Lys Lys Ala Val Val Gln Glu Glu Ile Ser Gln Lys Ala Leu
E--> 4706 6465             26470              26475              26480
      4707 Arg Ser Glu Glu Ile Lys Met Ser Glu Ala Lys Ser Gln Glu Lys Leu
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      4708          26485           26490           26495
      4709 Ala Leu Lys Glu Glu Ala Ser Lys Val Leu Ile Ser Glu Glu Val Lys
      4710          26500           26505           26510
      4711 Lys Ser Ala Ala Thr Ser Leu Glu Lys Ser Ile Val His Glu Glu Ile
      4712          26515           26520           26525
      4713 Thr Lys Thr Ser Gln Ala Ser Glu Glu Val Arg Thr His Ala Glu Ile
E--> 4714          26530           26535           26540                 2
      4715 Lys Ala Phe Ser Thr Gln Met Ser Ile Asn Glu Gly Gln Arg Leu Val
E--> 4716 6545           26550           26555           26560
      4717 Leu Lys Ala Asn Ile Ala Gly Ala Thr Asp Val Lys Trp Val Leu Asn
      4718          26565           26570           26575
      4719 Gly Val Glu Leu Thr Asn Ser Glu Glu Tyr Arg Tyr Gly Val Ser Gly
      4720          26580           26585           26590
      4721 Ser Asp Gln Thr Leu Thr Ile Lys Gln Ala Ser His Arg Asp Glu Gly
      4722          26595           26600           26605
      4723 Ile Leu Thr Cys Ile Ser Lys Thr Lys Glu Gly Ile Val Lys Cys Gln
E--> 4724          26610           26615           26620                 2
      4725 Tyr Asp Leu Thr Leu Ser Lys Glu Leu Ser Asp Ala Pro Ala Phe Ile
E--> 4726 6625           26630           26635           26640
      4727 Ser Gln Pro Arg Ser Gln Asn Ile Asn Glu Gly Gln Asn Val Leu Phe
      4728          26645           26650           26655
      4729 Thr Cys Glu Ile Ser Gly Glu Pro Ser Pro Glu Ile Glu Trp Phe Lys
      4730          26660           26665           26670
      4731 Asn Asn Leu Pro Ile Ser Ile Ser Ser Asn Val Ser Ile Ser Arg Ser
      4732          26675           26680           26685
      4733 Arg Asn Val Tyr Ser Leu Glu Ile Arg Asn Ala Ser Val Ser Asp Ser
E--> 4734          26690           26695           26700                 2
      4735 Gly Lys Tyr Thr Ile Lys Ala Lys Asn Phe Arg Gly Gln Cys Ser Ala
E--> 4736 6705           26710           26715           26720
      4737 Thr Ala Ser Leu Met Val Leu Pro Leu Val Glu Glu Pro Ser Arg Glu
      4738          26725           26730           26735
      4739 Val Val Leu Arg Thr Ser Gly Asp Thr Ser Leu Gln Gly Ser Phe Ser
      4740          26740           26745           26750
      4741 Ser Gln Ser Val Gln Met Ser Ala Ser Lys Gln Glu Ala Ser Phe Ser
      4742          26755           26760           26765
      4743 Ser Phe Ser Ser Ser Ser Ala Ser Ser Met Thr Glu Met Lys Phe Ala
E--> 4744          26770           26775           26780                 2
      4745 Ser Met Ser Ala Gln Ser Met Ser Ser Met Gln Glu Ser Phe Val Glu
E--> 4746 6785           26790           26795           26800
      4747 Met Ser Ser Ser Ser Phe Met Gly Ile Ser Asn Met Thr Gln Leu Glu
      4748          26805           26810           26815
      4749 Ser Ser Thr Ser Lys Met Leu Lys Ala Gly Ile Arg Gly Ile Pro Pro
      4750          26820           26825           26830
      4751 Lys Ile Glu Ala Leu Pro Ser Asp Ile Ser Ile Asp Glu Gly Lys Val
      4752          26835           26840           26845
      4753 Leu Thr Val Ala Cys Ala Phe Thr Gly Glu Pro Thr Pro Glu Val Thr
E--> 4754          26850           26855           26860                 2
      4755 Trp Ser Cys Gly Gly Arg Lys Ile His Ser Gln Glu Gln Gly Arg Phe
E--> 4756 6865           26870           26875           26880
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RAW SEQUENCE LISTING   DATE: 01/29/2001
PATENT APPLICATION: US/09/759,508   TIME: 13:24:54

Input Set : A:\00786.381002.SEQLIST.TXT
Output Set: N:\CRF3\01292001\I759508.raw

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4757 His Ile Glu Asn Thr Asp Asp Leu Thr Thr Leu Ile Ile Met Asp Val
4758            26885              26890             26895
4759 Gln Lys Gln Asp Gly Gly Leu Tyr Thr Leu Ser Leu Gly Asn Glu Phe
4760            26900              26905             26910
4761 Gly Ser Asp Ser Ala Thr Val Asn Ile His Ile Arg Ser Ile
4762            26915              26920             26925
```

VERIFICATION SUMMARY   DATE: 01/29/2001
PATENT APPLICATION: US/09/759,508   TIME: 13:24:55

Input Set : A:\00786.381002.SEQLIST.TXT
Output Set: N:\CRF3\01292001\I759508.raw

L:11 M:270 C: Current Application Number differs, Replaced Current Application No
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:2654 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
M:332 Repeated in SeqNo=2